

केंद्रीय विद्यालय संगठन, अहमदाबाद संभाग
KENDRIYA VIDYALAYA SANGATHAN, AHMEDABAD REGION

कक्षा बारहवीं द्वितीय प्री-बोर्ड परीक्षा : 2025-26

PRE-BOARD II EXAMINATION: 2025-26

SUBJECT : PHYSICS THEORY (042)

SET A

TIME: 3 HOURS

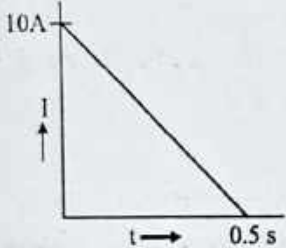
MM : 70

GENERAL INSTRUCTIONS:

- (1) There are 33 questions in all. All questions are compulsory.
- (2) This question paper has five sections: Section A, Section B, Section C, Section D and Section E.
- (3) All the sections are compulsory.
- (4) Section A contains sixteen questions, twelve MCQ and four Assertion Reasoning based of 1 mark each, Section B contains five questions of two marks each, Section C contains seven questions of three marks each, Section D contains two case study based questions of four marks each and Section E contains three long answer questions of five marks each.
- (5) There is no overall choice. However, an internal choice has been provided in two questions in Section B, one question in Section C, one question in each CBQ in Section D and all three questions in Section E. You have to attempt only one of the choices in such questions.
- (6) Use of calculators is not allowed.
- (7) You may use the following values of physical constants where ever necessary
 $c = 3 \times 10^8 \text{ m/s}$, $m_e = 9.1 \times 10^{-31} \text{ kg}$, $e = 1.6 \times 10^{-19} \text{ C}$, $\mu_0 = 4\pi \times 10^{-7} \text{ Tm A}^{-1}$,
 $\epsilon_0 = 8.85 \times 10^{-12} \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2}$, Avagadro Number $N_A = 6.02 \times 10^{23} \text{ per gram mole}$

Section A

- 1 A point charge situated at a distance r from a short electric dipole on its axis, 1
experience a force F . If the distance of the charge is $2r$, the force on the charge will be
 (A) $F/16$ (B) $F/8$
 (C) $F/4$ (D) $F/2$
- 2 Two particles A and B of the same mass but having charges q and $4q$ respectively, 1
are accelerated from rest through different potential differences V_A and V_B such that they attain same kinetic energies. The value of $\frac{V_A}{V_B}$ is
 (A) $\frac{1}{4}$ (B) $\frac{1}{2}$
 (C) 2 (D) 4
- 3 A coil contains N turns of insulated copper wire of diameter d and resistivity ρ wound 1
on a cylinder of diameter D . What is the total resistance between the two ends of the coil of copper wire? (given: $D \gg d$)
 (A) $\frac{4\rho ND}{d^2}$ (B) $\frac{8\rho ND}{d^2}$
 (C) $\frac{2\rho ND}{d^2}$ (D) $\frac{12\rho ND}{d^2}$
- 4 A galvanometer having a coil resistance of 48Ω , shows full-scale deflection for a 1
current of 2.0 A . It can be converted into an ammeter of range $(0 - 10 \text{ A})$ by connecting :
 (A) in series a resistance of 8Ω (B) in parallel a resistance of 8Ω
 (C) in parallel a resistance of 12Ω (D) in series a resistance of 12Ω

- 5 Which of the following substances has relative magnetic permeability $\mu_r \gg 1$
 (A) Aluminium (B) Copper
 (C) Nickel (D) Bismuth
- 6 The curve of binding energy per nucleon as a function of atomic mass number has a sharp peak for helium nucleus. This implies that helium nucleus is
 (A) radioactive (B) unstable
 (C) easily fissionable (D) more stable nucleus than its neighbours
- 7 A bulb is rated (100 W, 110 V). It is operated by current of 1.0 A supplied by a step down transformer. If the input voltage and efficiency of the transformer are 220 V and 0.9 respectively, the input current drawn from the mains is
 (A) $\frac{1}{2}$ A (B) $\frac{3}{8}$ A (C) $\frac{5}{9}$ A (D) $\frac{4}{7}$ A
- 8 Which of the following statement is true for the radio waves and the gamma rays?
 (A) The energy of gamma rays is lesser than that of the radio waves.
 (B) The frequency of the radio waves is higher than that of gamma rays.
 (C) The radio waves and the gamma rays have the same energy.
 (D) The energy of radio waves is lesser than that of the gamma rays.
- 9 In a coil of resistance 100Ω a current is induced by changing the magnetic flux through it. The variation of current with time is as shown in the figure. The magnitude of change in flux through coil is
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- (A) 250 Wb (B) 275 Wb (C) 225 Wb (D) 200 Wb
- 10 The distance of closest approach of an alpha particle is d when it moves with a speed v towards a nucleus. Another alpha particle is projected with higher energy such that the new distance of the closest approach is $d/2$. What is the speed of projection of the alpha particle in this case?
 (A) $v/2$ (B) $\sqrt{2} v$ (C) $2v$ (D) $4v$
- 11 A point object is placed at the centre of a glass sphere of radius 6 cm and refractive index 1.5. The distance of virtual image from the surface of the sphere is
 (A) 2 cm (B) 4 cm (C) 6 cm (D) 12 cm
- 12 A plane wavefront is incident on a concave mirror of radius of curvature R . The radius of the refracted wavefront will be
 (A) $2R$ (B) R (C) $R/2$ (D) $4R$

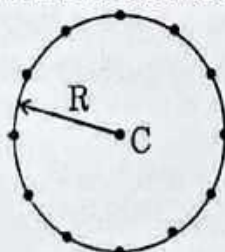
For Questions 13 to 16, two statements are given –one labelled Assertion (A) and other labelled Reason (R). Select the correct answer to these questions from the options as given below.

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- 13 **Assertion (A)** : Electrostatic force is a conservative force. 1
Reason (R) : In an electrostatic field, the work done between two points per unit positive charge depends on the path followed.
- 14 **Assertion (A)** : The image of an object placed between f and $2f$ from a convex lens can be seen on a screen. If the screen is removed, image is not formed. 1
Reason (R) : Rays from a given point on the object placed between f and $2f$, after passing through a convex lens, do not converge on a point in space.
- 15 **Assertion (A)** : The phase difference between any two points on a wavefront is zero. 1
Reason (R) : All points on a wavefront are at the same distance from the source and thus oscillate in the same phase.
- 16 **Assertion(A)** : In Lyman series, the ratio of minimum and maximum wavelength is $3/4$. 1
Reason(R) : Lyman series constitute spectral lines corresponding to transition from higher energy to ground state of hydrogen atom.

SECTION - B

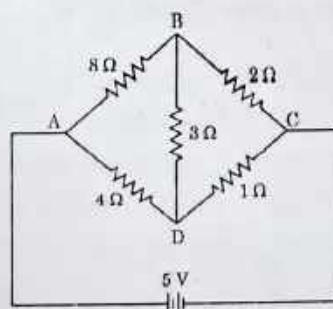
- 17 Twelve negative charges of same magnitude are equally spaced and fixed on the circumference of a circle of radius R as shown in Fig. Relative to potential being zero at infinity, find the electric potential and electric field at the centre C of the circle. 2



- 18 A cell is connected across an external resistance 12Ω and supplies 0.25A current. When the external resistance is increased by 4Ω , the current reduces to 0.2A . Calculate (i) the emf, and (ii) the internal resistance, of the cell. 2

OR

- The figure shows a network of resistors connected across a battery. Find the current supplied by the battery of emf 5V and internal resistance $\frac{2}{3}\Omega$. 2



- 19 A small magnetised needle P is placed at the origin of x-y plane with its magnetic moment pointing along the y-axis. Another identical magnetised needle Q is placed in two positions, one by one.

Case 1 : at (a, 0) with its magnetic moment pointing along x-axis.

Case 2 : at (0, a) with its magnetic moment pointing along y-axis.

(a) In which case is the potential energy of P and Q minimum?

(b) In which case is P and Q not in equilibrium?

Justify your answers.

OR

A wire of length l is in the form of a circular loop A of one turn. This loop is reshaped into loop B of three turns. Find the ratio of the magnetic fields at the centres of loop A and loop B for the same current through them.

- 20 (a) How is an electromagnetic wave produced? 2
(b) Sketch a schematic diagram depicting the electric and magnetic fields for an electromagnetic wave propagating along z-axis.

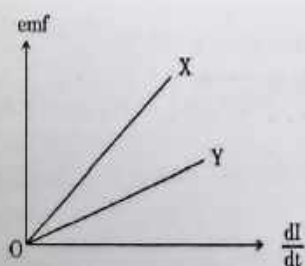
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In a plane electromagnetic wave in free space, the electric field oscillates sinusoidally at a frequency of 1.5×10^{10} Hz with amplitude 36 Vm^{-1} . Find:

- (a) the wavelength of the wave, and
(b) the amplitude of the associated magnetic field.
- 21 (a) Draw a graph to show the variation of the number of scattered particles detected (N) in Geiger-Marsden experiment as a function of scattering angle (θ). 2
(b) Discuss briefly two conclusions that can be drawn from this graph and how they lead to the discovery of nucleus in an atom.

SECTION C

- 22 A potential difference V is applied across a conductor of length l and uniform cross-section area A . How will the (i) electric field E , (ii) drift velocity v_d , and (iii) current density j be affected when (a) V is doubled and (b) l is halved (keeping other factors constant)? Explain. 3
- 23 A proton with kinetic energy $1.3384 \times 10^{-14} \text{ J}$ moving horizontally from north to south, enters a uniform magnetic field B of 2.0 mT directed eastward. Calculate:
(a) the speed of the proton
(b) the magnitude of acceleration of the proton
(c) the radius of the path traced by the proton
[Take (q/m) for proton = $1.0 \times 10^8 \text{ C/kg}$] 3
- 24 (a) State faraday's laws of electromagnetic induction. 3
(b) The figure shows the variation of induced emf as a function of rate of change of current for two identical solenoids X and Y. One is air cored and the other is iron cored. Which one of them is iron cored? Why?



- 25 A point light source rests on the bottom of a bucket filled with a liquid of refractive index $n = 1.25$ up to height of 10 cm. Calculate: 3
 (a) the critical angle for liquid-air interface
 (b) radius of circular light patch formed on the surface by light emerging from the source.
- 26 (a) In diffraction due to a single slit, the phase difference between light waves reaching a point on the screen is 5π . Explain whether a bright or a dark fringe will be formed at the point. 3
 (b) What should the width of each slit be to obtain eight maxima of two double-slit patterns (slit separation d) within the central maximum of the single slit pattern?
 (c) Draw the plot of intensity distribution in a diffraction pattern due to a single slit.
- 27 (a) Prove that the density of a nucleus is independent of its mass number. 3
 (b) Draw a graph showing variation of nuclear potential energy versus distance between the two nucleons. From the graph write any two characterises properties of nuclear force.

OR

- (a) Distinguish between nuclear fission and fusion giving an example of each. 3
 (b) Explain the release of energy in nuclear fission and fusion on the basis of binding energy per nucleon curve.
- 28 (a) A germanium crystal is doped with antimony. With the help of energy-band diagram, explain how the conductivity of the doped crystal is affected. 3
 (b) Briefly explain the two processes involved in the formation of a p-n junction.

SECTION D-Case Study Based Questions

- 29 Read the following paragraph and answers the questions: 4

Semiconductor: A pure semiconductor like Ge or Si, when doped with a small amount of suitable impurity, becomes an extrinsic semiconductor. In thermal equilibrium, the electron and hole concentration in it are related to the concentration of intrinsic charge carriers. A p-type or n-type semiconductor can be converted into a p-n junction by doping it with suitable impurity. Two processes, diffusion and drift take place during formation of a p-n junction. A semiconductor diode is basically a p-n junction with metallic contacts provided at the ends for the application of an external voltage. A p-n junction diode allows currents to pass only in one direction when it is forward biased. Due to this property, a diode is widely used to rectify alternating voltages, in half-wave or full wave configuration.

(i) When Ge is doped with pentavalent impurity, the energy required to free the weakly bound electron from the dopant is about

- (A) 0.001 eV (B) 0.01 eV
 (C) 0.72 eV (D) 1.1 eV

(ii) At a given temperature, the number of intrinsic charge carriers in a semiconductor is $2 \times 10^{10} \text{ cm}^{-3}$. It is doped with pentavalent impurity atoms. As a result, the number of holes in it becomes $8 \times 10^3 \text{ cm}^{-3}$. The number of electrons in the semiconductor is

- (A) $2 \times 10^{24} \text{ m}^{-3}$ (B) $4 \times 10^{23} \text{ m}^{-3}$
 (C) $1 \times 10^{22} \text{ m}^{-3}$ (D) $5 \times 10^{22} \text{ m}^{-3}$

(iii) During the formation of a p-n junction -

(A) electrons diffuse from p-region into n-region and holes diffuse from n-region into p-region.

(B) both electrons and holes diffuse from n-region into p-region.

(C) electrons diffuse from n-region into p-region and holes diffuse from p-region into n-region.

(D) both electrons and holes diffuse from p-region into n-region.

(v) An ac voltage $V = 0.5 \sin(100\pi t)$ volt is applied, in turn, across a half-wave rectifier and a full-wave rectifier. The frequency of the output voltage across them respectively will be

(A) 50 Hz, 100 Hz

(C) 50 Hz, 50 Hz

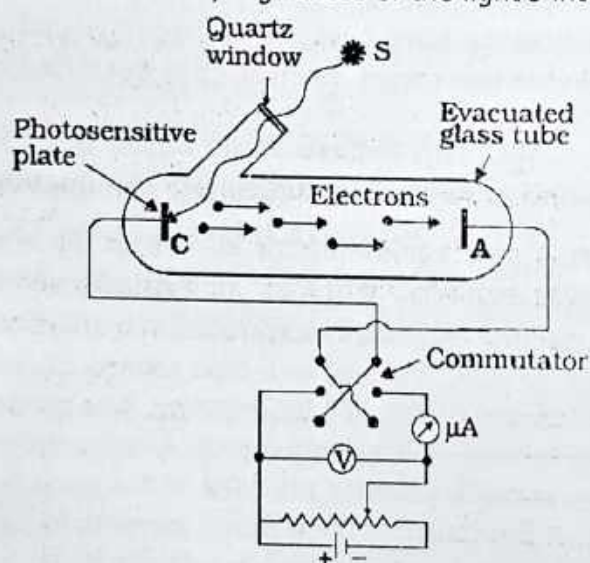
(B) 25 Hz, 100 Hz

(D) 25 Hz, 50 Hz

30 Read the following paragraph and answers the questions:

4

Photoelectric Emission: - The photoelectric emission experiment involves shining a monochromatic light of sufficient frequency onto a photosensitive metal plate inside an evacuated glass tube, which causes electrons to be ejected. The emitted electrons (photoelectrons) flow to a collector plate, creating a photoelectric current that can be measured by a micro-ammeter. The experiment allows for controlling the light's intensity and frequency and the potential difference between the plates to study how these factors affect the ejected electrons. A crucial condition is that the light's frequency must be above a certain "threshold frequency" for the metal, below which no emission will occur, regardless of the light's intensity.



(i) What is the value of stopping potential at threshold frequency? (1 Mark)

(ii) The work function of a substance is 1.6 eV. Find the longest wavelength of light that can produce photoemission from the surface of substance. (1 Mark)

(iii) Maximum kinetic energy of a photoelectron is E when the wavelength of incident light is λ . If energy becomes four times when wavelength is reduced to one-third, then what will be the work-function of the metal? (2 Mark)

SECTION E

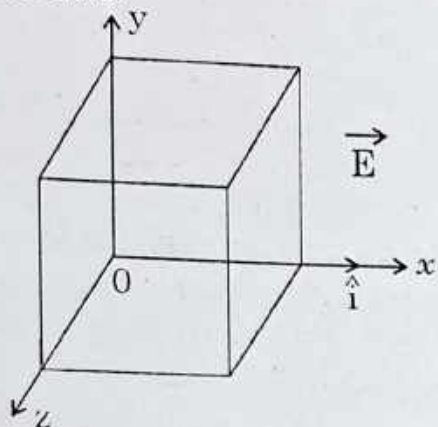
31 (a) A dielectric slab of dielectric constant 'K' and thickness 't' is inserted between 5 plates of a parallel plate capacitor of plate separation d and plate area A. Obtain an expression for its capacitance.

(b) Two capacitors of different capacitances are connected first (1) in series and then (2) in parallel across a de source of 100 V. If the total energy stored in the combination in the two cases are 40 mJ and 250 mJ respectively, find the capacitance of the capacitors.

OR

(a) Using Gauss's law, show that the electric field $\mathbf{E}$ at a point due to uniformly charged infinite plane sheet is given by $\mathbf{E} = \frac{\sigma}{\epsilon_0} \hat{n}$ where symbols have their usual meanings. Draw necessary diagram. 5

(b) Electric field $\mathbf{E}$ in a region is given by $\mathbf{E} = (5x^2 + 2) \hat{i}$ where $\mathbf{E}$ is in N/C and x is in meters. A cube of side 10 cm is placed in the region as shown in figure. Calculate (i) the electric flux through the cube, and (ii) the net charge enclosed by the cube.



32 (a) Obtain an expression for the mutual inductance of two long coaxial solenoids, each of length l but having different number of turns N_1 and N_2 and radii r_1 and r_2 ($r_2 > r_1$). Write any two factors on which the mutual inductance of two long coaxial solenoids depends. 5

(b) Calculate the self-inductance of a coil using the following data obtained when an AC source of frequency $\frac{200}{\pi}$ Hz and a DC source is applied across the coil.

AC SOURCE		
S.NO.	V (Volts)	I (A)
1	3.0	0.5
2	6.0	1.0
3	9.0	1.5

DC SOURCE		
S.NO.	V (Volts)	I (A)
1	4.0	1.0
2	6.0	1.5
3	8.0	2.0

OR

(a) Find the condition for resonance in a series LCR circuit connected to a source $v = v_0 \sin \omega t$. Give the factors on which the resonant frequency of a series LCR circuit depends. Plot a graph showing the variation of electric current with frequency in a series LCR circuit. 5

(b) A series R-C circuit with $R = 200 \Omega$ and $C = \frac{50}{\pi}$ F is connected across an AC source of $V_0 = 100$ V and frequency $\nu = 50$ Hz. Calculate (i) impedance of the circuit (Z) and (ii) voltage across the resistor.

- 33 (a) Give any two differences between the interference pattern obtained in Young's double-slit experiment and a diffraction pattern due to a single slit. 5
(b) Draw an intensity distribution graph in case of a Young's double-slit interference pattern. 1
(c) In Young's double-slit experiment using monochromatic light of wavelength λ , the intensity of light at a point on the screen, where path difference is A , is K units. Find the intensity of light at a point on the screen where the path difference is $\lambda/6$.

OR

- (a) Draw a labelled ray diagram of a compound microscope showing image formation at least distance of distinct vision. Write an expression for its magnifying power. 5
(b) Write any four advantages of a reflecting type telescope over a refracting type telescope.
(c) A telescope consists of two lenses of focal length 100 cm and 5 cm. Find the magnifying power when the final image is formed at infinity.

07/01/2026

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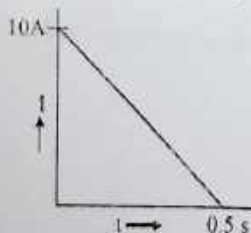
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Section A

- 1 The curve of binding energy per nucleon as a function of atomic mass number has a sharp peak for helium nucleus. This implies that helium nucleus is 1
(A) radioactive (B) unstable
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- 2 A bulb is rated (100 W, 110 V). It is operated by current of 1.0 A supplied by a step down transformer. If the input voltage and efficiency of the transformer are 220 V and 0.9 respectively, the input current drawn from the mains is 1
(A) $\frac{1}{2}$ A (B) $\frac{3}{8}$ A (C) $\frac{5}{9}$ A (D) $\frac{4}{7}$ A
- 3 Which of the following statement is true for the radio waves and the gamma rays? 1
(A) The energy of gamma rays is lesser than that of the radio waves.
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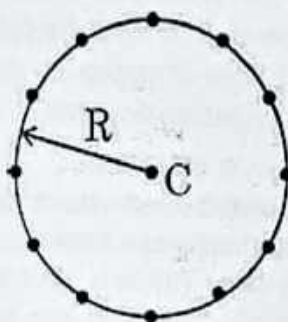
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SECTION - B

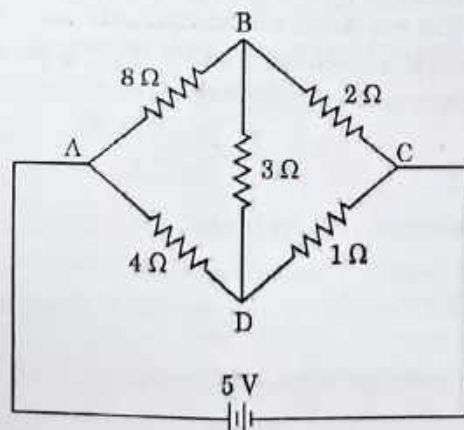
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Justify your answers.

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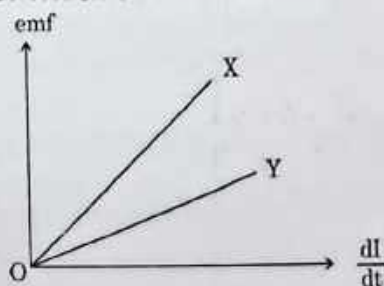
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SECTION C

- 22 A potential difference V is applied across a conductor of length l and uniform cross-section area A . How will the (i) electric field E , (ii) drift velocity v_d , and (iii) current density j be affected when (a) V is doubled and (b) l is halved (keeping other factors constant)? Explain. 3
- 23 A proton with kinetic energy 1.3384×10^{-14} J moving horizontally from north to south, enters a uniform magnetic field B of 2.0 mT directed eastward. Calculate: 3
(a) the speed of the proton
(b) the magnitude of acceleration of the proton
(c) the radius of the path traced by the proton
[Take (q/m) for proton = $1.0 \times 10^8 \text{ C/kg}$]
- 24 (a) State faraday's laws of electromagnetic induction. 3
(b) The figure shows the variation of induced emf as a function of rate of change of current for two identical solenoids X and Y. One is air cored and the other is iron cored. Which one of them is iron cored? Why?



- 25 A point light source rests on the bottom of a bucket filled with a liquid of refractive index $n = 1.25$ up to height of 10 cm. Calculate: 3
 (a) the critical angle for liquid-air interface
 (b) radius of circular light patch formed on the surface by light emerging from the source.
- 26 (a) In diffraction due to a single slit, the phase difference between light waves reaching a point on the screen is 5π . Explain whether a bright or a dark fringe will be formed at the point. 3
 (b) What should the width of each slit be to obtain eight maxima of two double-slit patterns (slit separation d) within the central maximum of the single slit pattern?
 (c) Draw the plot of intensity distribution in a diffraction pattern due to a single slit.
- 27 (a) Prove that the density of a nucleus is independent of its mass number. 3
 (b) Draw a graph showing variation of nuclear potential energy versus distance between the two nucleons. From the graph write any two characterises properties of nuclear force.

OR

- (a) Distinguish between nuclear fission and fusion giving an example of each. 3
 (b) Explain the release of energy in nuclear fission and fusion on the basis of binding energy per nucleon curve.
- 28 (a) A germanium crystal is doped with antimony. With the help of energy-band diagram, explain how the conductivity of the doped crystal is affected. 3
 (b) Briefly explain the two processes involved in the formation of a p-n junction.

SECTION D

Case Study Based Questions

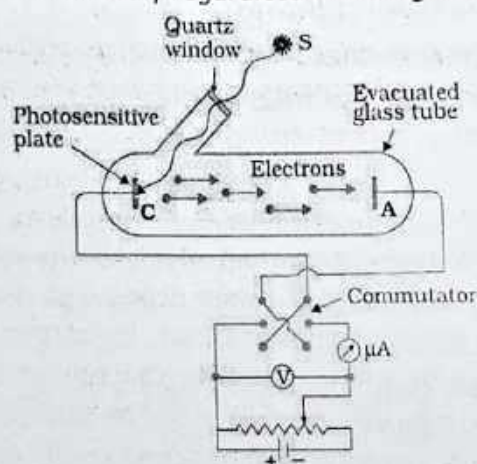
- 29 Read the following paragraph and answers the questions: 4
 A pure semiconductor like Ge or Si, when doped with a small amount of suitable impurity, becomes an extrinsic semiconductor. In thermal equilibrium, the electron and hole concentration in it are related to the concentration of intrinsic charge carriers. A p-type or n-type semiconductor can be converted into a p-n junction by doping it with suitable impurity. Two processes, diffusion and drift take place during formation of a p-n junction. A semiconductor diode is basically a p-n junction with metallic contacts provided at the ends for the application of an external voltage. A p-n junction diode allows currents to pass only in one direction when it is forward biased. Due to this property, a diode is widely used to rectify alternating voltages, in half-wave or full wave configuration.
- (i) When Ge is doped with pentavalent impurity, the energy required to free the weakly bound electron from the dopant is about
 (A) 0.001 eV (B) 0.01 eV
 (C) 0.72 eV (D) 1.1 eV
- (ii) At a given temperature, the number of intrinsic charge carriers in a semiconductor is $2 \times 10^{10} \text{ cm}^{-3}$. It is doped with pentavalent impurity atoms. As a result, the number of holes in it becomes $8 \times 10^3 \text{ cm}^{-3}$. The number of electrons in the semiconductor is
 (A) $2 \times 10^{24} \text{ m}^{-3}$ (B) $4 \times 10^{23} \text{ m}^{-3}$
 (C) $1 \times 10^{22} \text{ m}^{-3}$ (D) $5 \times 10^{22} \text{ m}^{-3}$

- (iii) During the formation of a p-n junction -
 (A) electrons diffuse from p-region into n-region and holes diffuse from n-region into p-region.
 (B) both electrons and holes diffuse from n-region into p-region.
 (C) electrons diffuse from n-region into p-region and holes diffuse from p-region into n-region.
 (D) both electrons and holes diffuse from p-region into n-region.
- (v) An ac voltage $V = 0.5 \sin(100\pi t)$ volt is applied, in turn, across a half-wave rectifier and a full-wave rectifier. The frequency of the output voltage across them respectively will be
 (A) 50 Hz, 100 Hz (C) 50 Hz, 50 Hz
 (B) 25 Hz, 100 Hz (D) 25 Hz, 50 Hz

30 **Read the following paragraph and answers the questions:**

4

Photoelectric emission:- The photoelectric emission experiment involves shining a monochromatic light of sufficient frequency onto a photosensitive metal plate inside an evacuated glass tube, which causes electrons to be ejected. The emitted electrons (photoelectrons) flow to a collector plate, creating a photoelectric current that can be measured by a micro-ammeter. The experiment allows for controlling the light's intensity and frequency and the potential difference between the plates to study how these factors affect the ejected electrons. A crucial condition is that the light's frequency must be above a certain "threshold frequency" for the metal, below which no emission will occur, regardless of the light's intensity.



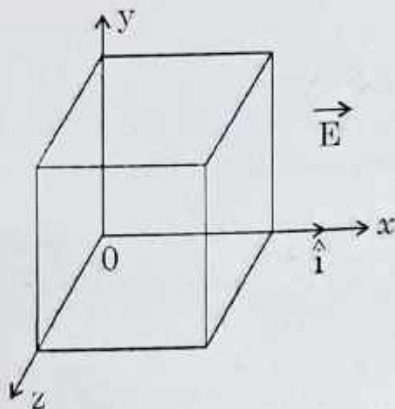
- (i) What is the value of stopping potential at threshold frequency? (1 Mark)
 (ii) The work function of a substance is 1.6 eV. Find the longest wavelength of light that can produce photoemission from the surface of substance. (1 Mark)
 (iii) Maximum kinetic energy of a photoelectron is E when the wavelength of incident light is λ . If energy becomes four times when wavelength is reduced to one-third, then what will be the work-function of the metal? (2 Mark)

SECTION E

- 31 (a) A dielectric slab of dielectric constant 'K' and thickness 't' is inserted between 5 plates of a parallel plate capacitor of plate separation d and plate area A. Obtain an expression for its capacitance.
 (b) Two capacitors of different capacitances are connected first (1) in series and then (2) in parallel across a dc source of 100 V. If the total energy stored in the combination in the two cases are 40 mJ and 250 mJ respectively, find the capacitance of the capacitors.

OR

- (a) Using Gauss's law, show that the electric field $\mathbf{E}$ at a point due to uniformly charged infinite plane sheet is given by $\mathbf{E} = \frac{\sigma}{\epsilon_0} \hat{n}$ where symbols have their usual meanings. Draw necessary diagram. 5
- (b) Electric field $\mathbf{E}$ in a region is given by $\mathbf{E} = (5x^2 + 2) \hat{i}$ where $\mathbf{E}$ is in N/C and x is in meters. A cube of side 10 cm is placed in the region as shown in figure. Calculate (i) the electric flux through the cube, and (ii) the net charge enclosed by the cube.



- 32 (a) Obtain an expression for the mutual inductance of two long coaxial solenoids, each of length l but having different number of turns N_1 and N_2 and radii r_1 and r_2 ($r_2 > r_1$). Write any two factors on which the mutual inductance of two long coaxial solenoids depends. 5
- (b) Calculate the self-inductance of a coil using the following data obtained when an AC source of frequency $\frac{200}{\pi}$ Hz and a DC source is applied across the coil.

AC SOURCE		
S.NO.	V (Volts)	I (A)
1	3.0	0.5
2	6.0	1.0
3	9.0	1.5

DC SOURCE		
S.NO.	V (Volts)	I (A)
1	4.0	1.0
2	6.0	1.5
3	8.0	2.0

OR

- (a) Find the condition for resonance in a series LCR circuit connected to a source $v = v_0 \sin \omega t$. Give the factors on which the resonant frequency of a series LCR circuit depends. Plot a graph showing the variation of electric current with frequency in a series LCR circuit. 5
- (b) A series R-C circuit with $R = 200 \Omega$ and $C = \frac{50}{\pi} \text{ F}$ is connected across an AC source of $V_0 = 100 \text{ V}$ and frequency $\nu = 50 \text{ Hz}$. Calculate (i) impedance of the circuit (Z) and (ii) voltage across the resistor.

- 33 (a) Give any two differences between the interference pattern obtained in Young's double-slit experiment and a diffraction pattern due to a single slit. 5
(b) Draw an intensity distribution graph in case of a Young's double-slit interference pattern.
(c) In Young's double-slit experiment using monochromatic light of wavelength λ , the intensity of light at a point on the screen, where path difference is A , is K units. Find the intensity of light at a point on the screen where the path difference is $\lambda/6$.

OR

- (a) Draw a labelled ray diagram of a compound microscope showing image formation at least distance of distinct vision. Write an expression for its magnifying power. 5
(b) Write any four advantages of a reflecting type telescope over a refracting type telescope.
(c) A telescope consists of two lenses of focal length 100 cm and 5 cm. Find the magnifying power when the final image is formed at infinity.

Kendriya Vidyalaya Sangathan, Ahmedabad Region

Pre Board II Examination 2025-26 for Class XII

SUBJECT : HISTORY (027) SET A

TIME-3 HOURS

M.M=80

General Instructions:

1. Question paper comprises five Sections – A, B, C, D and E. There are 34 questions in the question paper. All questions are compulsory.
2. Section A – Question 1 to 21 are MCQs of 1 mark each.
3. Section B – Question no. 22 to 27 are Short Answer Type Questions, carrying 3 marks each. Answer to each question should not exceed 60-80 words.
4. Section C – Question no 28 to 30 are Long Answer Type Questions, carrying 8 marks each. Answer to each question should not exceed 300-350 words
5. Section D – Question no.31 to 33 are Source based questions with three sub questions and are of 4 marks each
6. Section-E – Question no. 34 is Map based, carrying 5 marks that includes the identification and location of significant test items. Attach the map with the answer book.
7. There is no overall choice in the question paper. However, an internal choice has been provided in few questions. Only one of the choices in such questions have to be attempted.
8. In addition to this, separate instructions are given with each section and question, wherever necessary.

SECTION –A

1. Who among the following was the best-known ruler of the Satavahana Dynasty? 1
 A. Yagnasri Satakarni B. Simuka Satakarni
 C. Gotami-putra Siri- Satakarni D. Vashisthaputra Satakarni
2. Who among the following had issued the first gold coins in the first century CE? 1
 A. The Yaudheyas B. The Parthians C. The Guptas D. The Kushanas
3. Which among the following was used in warfare by the Vijayanagar Empire during the 14th century? 1
 A. Musket B. cannon C. sword D. stone
4. Identify the Sikh guru who first compiled the Adi Granth, which later expanded into the Guru Granth Sahib. 1
 A. Guru Arjan Dev B. Guru Nanak Dev C. Guru Gobind Singh D. Guru Tegh Bahadur
5. Which one of the following was the main demand of the Khilafat movement? 1
 A. Dominion status for India B. Self-rule to India
 C. Restoration of Caliphate of Turkey D. Revival of orthodox culture of Islam

6. "Be lamps unto yourselves as all of you must work out your own liberation." Identify the essence of the words of Buddha from the options given below: 1
 A. One should connect to inner being B. One should live life of brahmacharya
 C. One should focus and express feelings D. One should spread religion everywhere.
7. The local merchants of the Vijayanagara Empire who participated in the trade of horses were called-----: 1
 A. Gajapati B. Mahanayakas C. Kudirai Chettis D. Narapati
8. There are two statements given below, marked as Assertion (A) and Reason (R). Read the statements and choose the correct option. 1
 Assertion (A): The Revolt of 1857 in India was a spontaneous uprising with no clear leadership or organised strategy.
 Reason (R): The participants came from diverse backgrounds and regions and lacked centralised coordination
 A. A is true but R is false.
 B. A is false but R is true.
 C. Both A and R are true and R explains A.
 D. Both A and R are true but R does not explain A.
9. The Harappan Civilisation had trade contacts with distant lands as well. In this respect, which of the following statements is CORRECT? 1
 A. Trade contacts were established with the Mediterranean region through Suez Canal.
 B. Metal currency was the primary medium of trade exchange with distant lands.
 C. Texts from Mesopotamia mention Harappan links with modern day Bahrain.
 D. Most Harappan crops were obtained through trade with distant lands
10. Identify the name of the person from the information given below. 1
 A. He was born at Tangier in one of the most respectable and educated family.
 B. He considered experience gained through travel as a source of knowledge than books.
 C. He had travelled to middle east and few trading ports on the coast of East Africa.
 D. He wrote a book named Rihla .
 A. Ibn Battuta
 B. Francois Bernier
 C. Al Biruni
 D. Domingo Paes
11. Which among the following actions were adopted by followers of Gandhian Nationalism? 1
 A. Encouraging people to learn English
 B. Giving hate speech against the Indian minorities
 C. Mobilising people to form an army against the British
 D. Breaking unfair laws that the British had imposed on Indians
12. Ashoka erected a pillar at----- to mark that he had visited that place. 1
 A. Sarnath B. Sanchi C. Bodh Gaya D. Lumbini.
13. Who wrote the book Kitab-ul-Hind? 1
 C. Ibn Battuta (B) Al- Biruni (c) Francois Bernier (D. Abdur Razzaq

14. Which one of the following countries was the source of cotton after the out break of the American Civil War in 1861? 1
A. America B. Africa C. India D. Sri Lanka
15. Who among the following was the author of book 'The Story of Indian Archaeology'? 1
A. R E M Wheeler B. John Marshall C. S.N. Roy D. Rakhal Das Bannerjee
16. Which among the following is Correctly matched? 1
- | List I | List II |
|------------|--------------|
| CENTRE | LEADER |
| A. Delhi | Nana Saheb |
| B. Kanpur | Kunwar Singh |
| C. Arrah | Bahadur Shah |
| D. Lucknow | Birjis Qadr |
17. From which of the following regions Ahom rulers belonged to? 1
A. Delhi B. Orissa C. Ajmer D. Assam
18. Why was the task of defining minority rights in the Constituent Assembly difficult? 1
Choose the correct option from the following: -
A. Different groups had different demands regarding rights
B. British did not want to include it in the constitutional frame work.
C. Gandhiji opposed the idea of special rights for some sections.
D. Rights of people in Princely states were ambiguous.
19. Abu'lFazl was a court historian of which the following Mughal emperor? 1
A. Humayun B. Akbar C. Babur D. Jahangir
20. There are two statements given below, marked as Assertion (A) and Reason (R). 1
Read the statements and choose the correct option.
Assertion (A): Rich ryots and village headmen – Jotedars and Mandals – wanted the Zamindars to be in trouble.
Reason (R): The greater part of rural credit was supplied by the Jotedars, not by the Zamindars who administered rural territory than owning land.
A. A is true but R is false.
B. A is false but R is true.
C. Both A and R are true and R explains A.
D. Both A and R are true but R does not explain
21. Identify the given image from the following options: 1



- A. Sculpture of a Gupta king B. Sculpture of a Maurya king
C. Sculpture of a Kushana king D. Sculpture of a Chola king

NOTE: The following question is for the visually impaired candidates in lieu of Question number 21.

Who among the following was the composer of Prayaga Prashasti?

- A. Banbhatta B. Charak C. Harishena D. Surdas

SECTION -B

22. 22 A. Describe any three features of the 'Great Bath' used in the Harappan settlements. 3

OR

22 B. Describe any three features of Harappan drainage system.

23. Explain the sources used by historians to reconstruct the history of the Mauryan Empire. 3

24. "The battle between the hoe and plough was a long one." Substantiate the statement with reference to the Santhal and Paharia's of Raj Mahal Hills during the 18th century. 3

25. Analyse the main features of Amara nayaka system which was introduced in the Vijayanagar Empire. 3

26. Give three reasons why Ibn Battuta's travel accounts differ greatly from Al Biruni's travel accounts. 3

27. 27 A. "Rumours circulate only when they resonate, with the deep fears and suspicion of the people". How was this statement true in the context of the Revolt of 1857? 3

OR

27 B. "Through proclamations the rebels of 1857 completely rejected everything associated with British rule or firangi raj". Cite any three aspects to support this statement.

SECTION -C

28. 28 A. "Brahmanical norms regarding marriage and occupation were not universally followed in ancient times." Give arguments in support of your answer. 8

OR

28 B. List the non-Kshatriya Kings and write about their policies that challenged the Brahmanical ideas of society.

29. 29 A. How did the village panchayat regulate the rural society in the Mughal period? Explain 8

OR

29 B. Examine the condition of zamindars in Mughal agrarian society.

30. 30 A. Examine the different kinds of sources from which the political career of Gandhiji and the history of the National movement could be reconstructed. 8

OR

30 B. "The Quit India Movement genuinely a mass movement". Justify

SECTION D (Source Based Questions)

31. Read the source given below carefully and answer the questions that follow: 1+2+1

=4

The world beyond the palace.

Just as the Buddha's teachings were compiled by his followers, the teachings of Mahavira were also recorded by his disciples. These were often in the form of stories, which could appeal to ordinary people. Here is one example, from a Prakrit text known as the UttaradhyayanaSutta, describing how a queen named Kamalavati tried to persuade her husband to renounce the world: If the whole world and all its treasures were yours, you would not be satisfied, nor would all this be able to save you. When you die, O king and leave all things behind, dhamma alone, and nothing else, will save you. As a bird dislikes the cage, so do I dislike (the world). I shall live

as a nun without offspring, without desire, without the love of gain, and without hatred ... Those who have enjoyed pleasures and renounced them, move about like the wind, and go wherever they please, unchecked like birds in their flight ... Leave your large kingdom ... abandon what pleases the senses, be without attachment and property, then practise severe penance, being firm of energy

31.1 Identify the person who persuaded the king to renounce the world.

31.2 "Oh king, dhamma alone and nothing else will save you"-. What does the word "dhamma" signifies and whose teachings was followed by the disciple?

31.3 Under which context the following statement "unchecked like birds in their flight..." was told by the disciple of Mahavira?

32. Read the source given below carefully and answer the questions that follow:

1+2+1
=4

A demon?

This is an excerpt from a poem by Karaikkal Ammaiyar in which she describes herself: The female Pey (demoness) with ... bulging veins, protruding eyes, white teeth and shrunken stomach, red haired and jutting teeth lengthy shins extending till the ankles, shouts and wails while wandering in the forest. This is the forest of Alankatu, which is the home of our father (Shiva) who dances

... with his matted hair thrown own in all eight directions, and with cool limbs.

32.1. How beauty has been personified by Karaikal Ammaiyar?

32.2. "Bulging veins, protruding eyes, white teeth and shrunken stomach", "Shouts and wails". State the reason behind the poet's condition in the excerpt given

32.3 Examine the phrase "With his matted hair thrown in all eight directions "

33. Read the following source carefully and answer the questions that follow.

1+1+2
=4

What should be the qualities of a national language?

A few months before his death Mahatma Gandhi reiterated his views on the language question: This Hindustani should be neither Sanskritised Hindi nor Persianised Urdu but a happy combination of both. It should also freely admit words wherever necessary from the different regional languages and also assimilate words from foreign languages, provided that they can mix well and easily with our national language. Thus, our national language must develop into a rich and powerful instrument capable of expressing the whole gamut of human thought and feelings. To confine oneself to Hindi or Urdu would be a crime against intelligence and the spirit of patriotism.

(HARIJANSEVAK, 12 OCTOBER 1947)

33.1) Explain the term 'multicultural language '.

33.2) What were the characteristics of the national language, in context to the source?

33.3) "The report of the Language Committee, promoted the spirit of patriotism" Give reasons.

SECTION -E (MAP BASED QUESTION)

34. 34.1 On the given political map of India, locate and label the following with appropriate symbols:

3+2=5

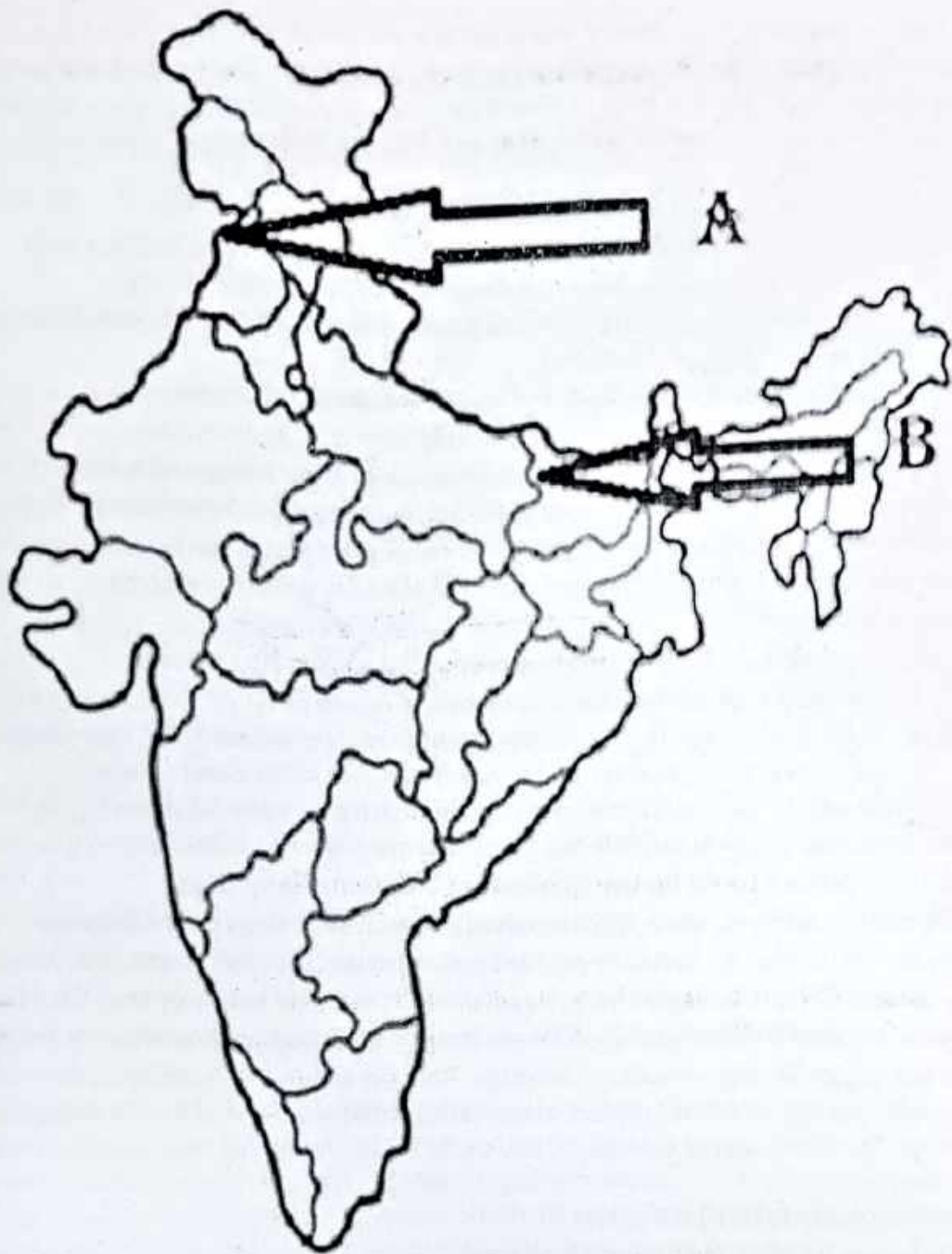
- a. Kalibangan a Harappan site b. Agra, a territory under Babur, Akbar, and Aurangzeb
c. Sanchi, a Buddhist site. OR Ajanta, a Buddhist site

34.2. On the same outline map, two places have been marked as A and B, which are the centers of Indian National movement.

Identify them and write their correct names on the lines drawn near them.

NOTE: The following question is for the visually impaired candidates in lieu of Question number 34.

Name any five centres of the freedom movement of India..



Kendriya Vidyalaya Sangathan, Ahmedabad Region

Pre Board II Examination 2025-26 for Class XII

SUBJECT : HISTORY (027) SET B

TIME-3 HOURS

M.M=80

General Instructions:

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SECTION -A

1. Ashoka erected a pillar at-----to mark that he had visited that place. 1
A.Sarnath B.Sanchi. C.Bodh Gaya D. Lumbini
2. Who among the following had issued the first gold coins in the first century CE? 1
A. The Yaudheyas B. The Parthians C. The Guptas D. The Kushanas
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D. He wrote a book named Rihla .
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- A. America B. Africa C. India D. Sri Lanka
15. Who among the following was the author of book 'The Story of Indian Archaeology'? 1
- A. R E M Wheeler B. John Marshall C. S.N. Roy D. Rakhal Das Bannerjee

16. Which among the following is Correctly matched? 1

List I	List II
CENTRE	LEADER
A. Delhi	Nana Saheb
B. Kanpur	Kunwar Singh
C. Arrah	Bahadur Shah
D. Lucknow	Birjis Qadr

17. From which of the following regions Ahom rulers belonged to? 1

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Choose the correct option from the following: -

- A. Different groups had different demands regarding rights
- B. British did not want to include it in the constitutional frame work.
- C. Gandhiji opposed the idea of special rights for some sections.
- D. Rights of people in Princely states were ambiguous.

19. Abu'lFazl was a court historian of which the following Mughal emperor? 1

A. Humayun B. Akbar C. Babur D. Jahangir

20. There are two statements given below, marked as Assertion (A) and Reason (R). 1

Read the statements and choose the correct option.

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- B. A is false but R is true.
- C. Both A and R are true and R explains A.
- D. Both A and R are true but R does not explain A.

21. Identify the given image from the following options: 1



- A. Sculpture of a Gupta king
- B. Sculpture of a Maurya king
- C. Sculpture of a Kushana king
- D. Sculpture of a Chola king

NOTE: The following question is for the visually impaired candidates in lieu of Question number 21.

Who among the following was the composer of Prayaga Prashasti?

- A. Banbhata
- B. Charak
- C. Harishena
- D. Surdas

SECTION -B

22. 22 A. Describe any three features of the 'Great Bath' used in the Harappan settlements. OR 3
22 B. Describe any three features of Harappan drainage system.
23. Explain the sources used by historians to reconstruct the history of the Mauryan Empire. 3
24. "The battle between the hoe and plough was a long one." Substantiate the statement with reference to the Santhal and Paharia's of Raj Mahal Hills during the 18th century. 3
25. Analyse the main features of Amara nayaka system which was introduced in the Vijayanagar Empire. 3
26. Give three reasons why Ibn Battuta's travel accounts differ greatly from Al Biruni's travel accounts. 3
27. 27 A. "Rumours circulate only when they resonate, with the deep fears and suspicion of the people". How was this statement true in the context of the Revolt of 1857? OR 3
27 B. "Through proclamations the rebels of 1857 completely rejected everything associated with British rule or firangi raj". Cite any three aspects to support this statement.

SECTION -C

28. 28 A. "Brahmanical norms regarding marriage and occupation were not universally followed in ancient times." Give arguments in support of your answer. OR 8
28 B. List the non-Kshatriya Kings and write about their policies that challenged the Brahmanical ideas of society.
29. 29 A. How did the village panchayat regulate the rural society in the Mughal period? Explain 8
OR
29 B. Examine the condition of zamindars in Mughal agrarian society.
30. 30 A. Examine the different kinds of sources from which the political career of Gandhiji and the history of the National movement could be reconstructed. OR 8
30 B. "The Quit India Movement genuinely a mass movement". Justify

SECTION D (Source Based Questions)

31. Read the source given below carefully and answer the questions that follow: 1+2+1
=4

The world beyond the palace.

Just as the Buddha's teachings were compiled by his followers, the teachings of Mahavira were also recorded by his disciples. These were often in the form of stories, which could appeal to ordinary people. Here is one example, from a Prakrit text known as the UttaradhyayanaSutta, describing how a queen named Kamalavati tried to persuade her husband to renounce the world: If the whole world and all its treasures were yours, you would not be satisfied, nor would all this be able to save you. When you die, O king and leave all things behind, dhamma alone, and nothing else, will save you. As a bird dislikes the cage, so do I dislike (the world). I shall live as a nun without offspring, without desire, without the love of gain, and without hatred ... Those who have enjoyed pleasures and renounced them, move about like the wind, and go wherever they please, unchecked like birds in their flight ... Leave your large kingdom ... abandon what pleases the senses, be without attachment and property, then practise severe penance, being firm of energy

...

- 31.1 Identify the person who persuaded the king to renounce the world.
- 31.2 "Oh king, dhamma alone and nothing else will save you"-. What does the word "dhamma" signifies and whose teachings was followed by the disciple?
- 31.3 Under which context the following statement "unchecked like birds in their flight..." was told by the disciple of Mahavira?

32. Read the source given below carefully and answer the questions that follow:

1+2+1

=4

A demon?

This is an excerpt from a poem by Karaikkal Ammaiyar in which she describes herself: The female Pey (demoness) with . . . bulging veins, protruding eyes, white teeth and shrunken stomach, red haired and jutting teeth lengthy shins extending till the ankles, shouts and wails while wandering in the forest. This is the forest of Alankatu, which is the home of our father (Shiva) who dances

... with his matted hair thrown own in all eight directions, and with cool limbs.

32.1. How beauty has been personified by Karaikal Ammaiyar?

32.2. "Bulging veins, protruding eyes, white teeth and shrunken stomach", "Shouts and wails". State the reason behind the poet's condition in the excerpt given

32.3 Examine the phrase "With his matted hair thrown in all eight directions "

1+1+2

=4

33. Read the following source carefully and answer the questions that follow.

What should be the qualities of a national language?

A few months before his death Mahatma Gandhi reiterated his views on the language question:

This Hindustani should be neither Sanskritised Hindi nor Persianised Urdu but a happy combination of both. It should also freely admit words wherever necessary from the different regional languages and also assimilate words from foreign languages, provided that they can mix well and easily with our national language. Thus, our national language must develop into a rich and powerful instrument capable of expressing the whole gamut of human thought and feelings. To confine oneself to Hindi or Urdu would be a crime against intelligence and the spirit of patriotism.

(HARIJANSEVAK, 12 OCTOBER 1947)

33.1) Explain the term 'multicultural language '.

33.2) What were the characteristics of the national language, in context to the source

33.3) "The report of the Language Committee, promoted the spirit of patriotism" Give reasons.

SECTION -E (MAP BASED QUESTION)

34. 34.1 On the given political map of India, locate and label the following with appropriate symbols:

a. Kalibangan a Harappan site

b. Agra, a territory under Babur, Akbar, and Aurangzeb

c. Sanchi, a Buddhist site. OR Ajanta, a Buddhist site

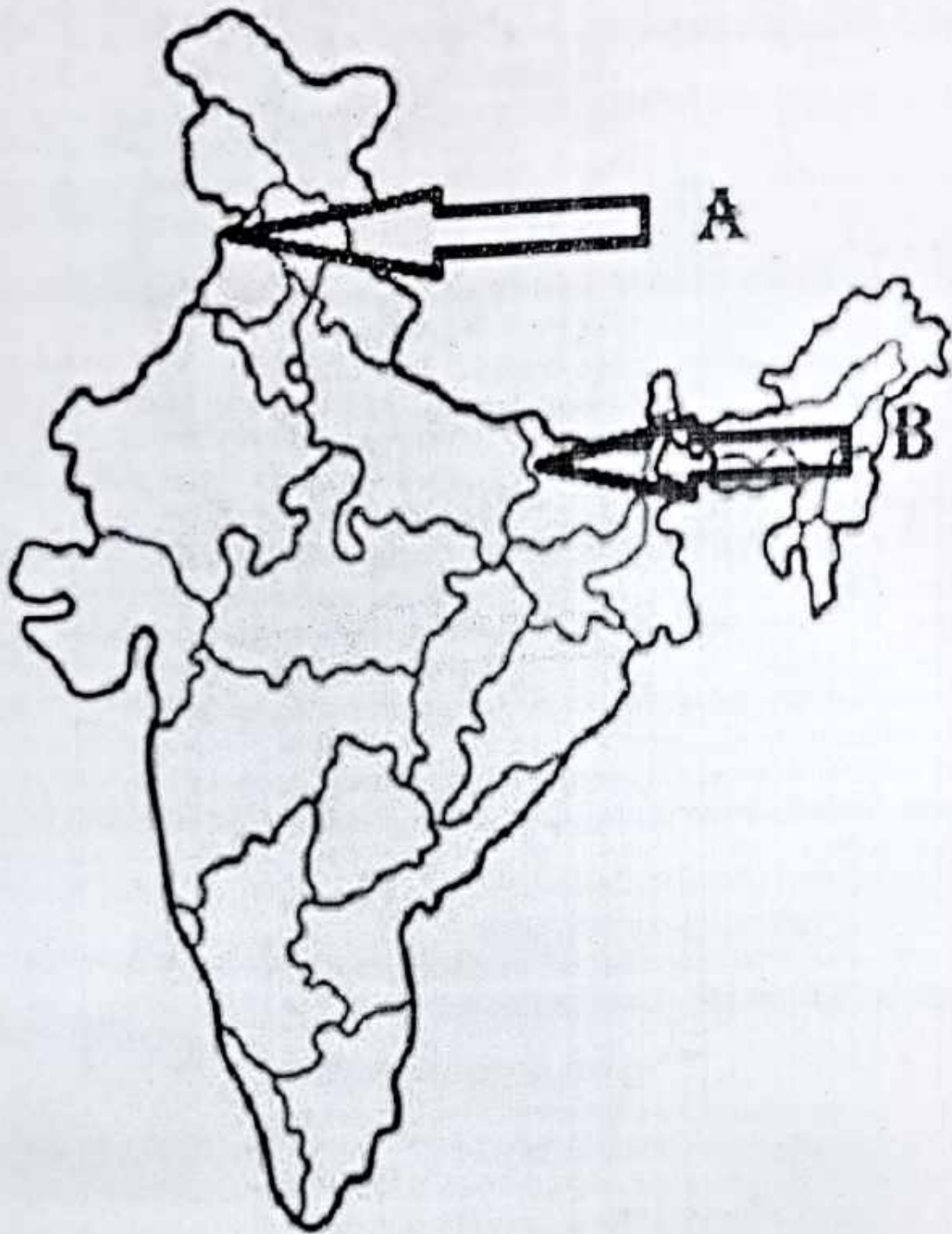
34.2. On the same outline map, two places have been marked as A and B, which are the centers of Indian National movement.

Identify them and write their correct names on the lines drawn near them.

NOTE: The following question is for the visually impaired candidates in lieu of Question number 34.

Name any five centres of the freedom movement of India..

3+2=5



05/01/2026

SET B

केंद्रीय विद्यालय संगठन, अहमदाबाद संभाग
Kendriya Vidyalaya Sangathan, Ahmedabad Region

कक्षा बारहवीं प्री-बोर्ड - द्वितीय परीक्षा 2025-26
PRE-BOARD II EXAMINATION 2025-26 for Class XII

SUBJECT: CHEMISTRY (043)

M.M.: 70

TIME: 3 Hours

सामान्य निर्देश / GENERAL INSTRUCTIONS:

1. There are 33 questions in this question paper with internal choice.
2. Section A consists of 16 multiple-choice questions carrying 1 mark each.
3. Section B consists of 5 short answer questions carrying 2 marks each.
4. Section C consists of 7 short answer questions carrying 3 marks each.
5. Section D consists of 2 case-based questions carrying 4 marks each.
6. Section E consists of 3 long answer questions carrying 5 marks each.
7. All questions are compulsory.
8. Use of log tables and calculators is not allowed. Required log values are given below-
(antilog 0.53=3.41, antilog 0.167=1.47, log 3 =0.47, log 5=0.7, log 7 =0.84, log 2= 0.30)

SECTION A

The following questions are multiple-choice questions with one correct answer.
Each question carries 1 mark. There is no internal choice in this section.

1. Molecule whose mirror image is non-superimposable over them are known as optical isomers. Which of the following molecules is chiral in nature?
(a) 2-bromobutane (b) 1-bromo-3-methyl butane
(c) 3-Bromo pentane (d) 2-bromo propan-2-ol
2. For the best yield of ether from Williamson's synthesis, the alkyl halide should preferable be:
(a) Secondary (b) Primary
(c) Tertiary (d) All
3. What is the decreasing order of the basicity of 1°, 2° and 3° amines and ammonia in gaseous phase?
(a) $\text{NH}_3 > \text{C}_2\text{H}_5\text{NH}_2 > (\text{C}_2\text{H}_5)_2\text{NH} > (\text{C}_2\text{H}_5)_3\text{N}$
(b) $(\text{C}_2\text{H}_5)_3\text{N} > (\text{C}_2\text{H}_5)_2\text{NH} > \text{C}_2\text{H}_5\text{NH}_2 > \text{NH}_3$
(c) $(\text{C}_2\text{H}_5)_2\text{NH} > \text{C}_2\text{H}_5\text{NH}_2 > (\text{C}_2\text{H}_5)_3\text{N} > \text{NH}_3$
(d) $(\text{C}_2\text{H}_5)_2\text{NH} > (\text{C}_2\text{H}_5)_3\text{N} > \text{C}_2\text{H}_5\text{NH}_2 > \text{NH}_3$
4. $\text{RMgX} + \text{CO}_2 \rightarrow \text{X}$ Hydrolysis $\rightarrow \text{Y}$; 'Y' in the above reaction is?
(a) RCOOR (b) RCHO
(c) RCOOH (d) RCOOR
5. Glucose reacts with hydroxylamine to form an oxime. This confirms the presence of:
(a) secondary alcoholic group (b) straight chain of six carbon atoms
(c) primary alcoholic group (d) carbonyl group

- 6 Vitamin B₆ is :
 (a) Riboflavin (b) Ascorbic acid
 (c) Thiamine (d) Pyridoxine
- 7 Why alkyl halides are considered to be very reactive compounds towards nucleophile?
 (a) they have an electrophilic carbon & a good leaving group
 (b) they have a nucleophilic carbon & a good leaving group
 (c) they have a nucleophilic carbon & a bad leaving group
 (d) they have an electrophilic carbon & a bad leaving group
- 8 The quantity of charge required to obtain two mole of aluminium from Al₂O₃ is.....
 (a) 1 F (b) 2 F
 (c) 3 F (d) 6 F
- 9 Magnetic moments (BM) of transition elements 1,2,3 and 4 are:
- | | | | |
|------|------|------|------|
| 1 | 2 | 3 | 4 |
| 2.84 | 4.90 | 5.92 | 3.87 |
- (a) 1=Ti²⁺, 2=Cr²⁺, 3=Mn²⁺, 4=V²⁺
 (b) 1=Ti²⁺, 2=Mn²⁺, 3=Cr²⁺, 4=V²⁺
 (c) 1=V²⁺, 2=Cr²⁺, 3=Mn²⁺, 4=Ti²⁺
 (d) 1=Ti²⁺, 2=Cr²⁺, 3=V²⁺, 4=Mn²⁺
- 10 Zr and Hf have almost equal atomic and ionic radii because of
 (a) diagonal relationship (b) actinoid contraction
 (c) lanthanoid contraction (d) belonging to the same group
- 11 What are the units of k for the rate law: Rate = k[A][B]⁰, when the concentration unit is mol/L?
 (a) L mol⁻¹ s⁻¹ (b) L² mol⁻² s⁻¹
 (c) s⁻¹ (d) L⁻¹ mol s⁻¹
- 12 In comparison to a 0.01 M solution of glucose, the elevation in boiling point of a 0.01 M MgCl₂ solution is :-
 (a) Same (b) about twice
 (c) about three times (d) about four times.

Question number 13-16 are of assertion-reason type questions. Select the most appropriate answer from the options given below:

- (a) Both A and R are true and R is the correct explanation of A
 (b) Both A and R are true but R is not the correct explanation of A.
 (c) A is true but R is false.
 (d) A is false but R is true.

- 13 **Assertion:** A solution of acetone and chloroform has lower vapour pressure than that of pure components.

Reason: Acetone and chloroform forms intermolecular hydrogen bond in the solution.

- 14 **Assertion:** Secondary cells are used in invertors.

Reason: A primary cell can be recharged by passing current through it in the opposite direction after it has been used.

- 15 **Assertion:** SN₂ reaction of an optically active alkyl halide with an aqueous solution of KOH always gives an alcohol with opposite sign of rotation.

Reason: SN₁ reactions always proceed with racemisation.

- 16 **Assertion:** Decomposition of ammonia on a hot Pt surface is a zero reaction.

Reason: Rate of the reaction depends on concentration of ammonia

SECTION B

This section contains 5 questions with internal choice in one question. These questions are very short answer type and carry 2 marks each.

- 17 (i) Arrange the following in the increasing order of boiling point
0.1M $\text{Al}_2(\text{SO}_4)_3$, 0.1M KCl, 0.1M Glucose, 0.1M $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$
- (ii) What happens when blood cells are kept in 0.2% NaCl solution.
- 18 Write the following reactions:
(a) Cannizzaro reaction of Benzaldehyde (b) Aldol condensation of Ethanal
- 19 (i) Write chemical equation for the following conversions:
 $\text{CH}_3 - \text{CH}_2 - \text{Cl}$ into $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{NH}_2$
- (ii) Write structures and IUPAC names of the amide which gives ethanamine by Hoffmann bromamide reaction.
- 20 Explain giving reasons:
(i) Transition metals and many of their compounds show paramagnetic behaviour.
(ii) The enthalpies of atomisation of the transition metals are high.

OR

- Explain giving reasons:
(i) The transition metals generally form coloured compounds.
(ii) Transition metals and their many compounds act as good catalyst
- 21 Determine the amount of CaCl_2 ($i = 2.47$) dissolved in 2.5 litre of water such that its osmotic pressure is 0.75 atm at 27°C

SECTION C

This section contains 7 questions with internal choice in one question. These questions are short answer type and carry 3 marks each.

- 22 (i) Write the formulas for the following coordination compound:
(a) tetraamminediaquacobalt(III) chloride
(b) tris(ethane-1,2-diamine) chromium(III) chloride
- (ii) Explain on the basis of valence bond theory that $[\text{Ni}(\text{CN})_4]^{2-}$ ion with square planar structure is diamagnetic and the $[\text{NiCl}_4]^{2-}$ ion with tetrahedral geometry is paramagnetic.
- 23 (i) How will you convert 4-nitrotoluene to 2-bromobenzoic acid ?
(ii) Although amino group is o- and p- directing in aromatic electrophilic substitution reactions, aniline on nitration gives a substantial amount of m-nitroaniline
- 24 (i) Describe the preparation of potassium dichromate from iron chromite ore.
(ii) What is the effect of increasing pH on a solution of potassium dichromate?
- 25 2 g of benzoic acid ($\text{C}_6\text{H}_5\text{COOH}$) dissolved in 25 g of benzene shows a depression in freezing point equal to 1.62 K. Molal depression constant for benzene is $4.9 \text{ K kg mol}^{-1}$. What is the percentage association of acid if it forms dimer in solution?
- 26 (i) Write the equations involved in the following reactions:
(a) Reimer - Tiemann reaction (b) Kolbe's reaction
- (ii) Show how will you synthesise 1-phenylethanol from a suitable alkene.
- 27 Determine the values of equilibrium constant (K_c) and ΔG° for the following reaction
 $\text{Ni(s)} + 2\text{Ag}^+(\text{aq}) \rightarrow \text{Ni}^{2+}(\text{aq}) + 2\text{Ag(s)}$, $E^\circ = 1.05 \text{ V}$

OR

Define conductivity. Explain the variation of conductivity and molar conductivity with concentration. Also draw the graph.

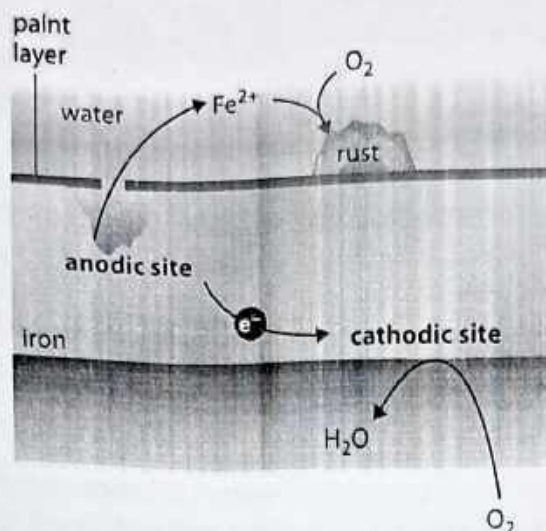
- 28 Explain why
(i) the dipole moment of chlorobenzene is lower than that of cyclohexyl chloride? (ii) alkyl halides, though polar, are immiscible with water?
(iii) Grignard reagents should be prepared under anhydrous conditions?

SECTION D

The following questions are case -based questions. Each question has an internal choice and carries 4 (1+1+2) marks each. Read the passage carefully and answer the questions that follow.

29

"Electrochemical Cells and Corrosion"



An electrochemical cell consists of zinc and copper electrodes. The cell notation is:
 $\text{Zn(s)} \mid \text{Zn}^{2+}(\text{aq}, 1 \text{ M}) \parallel \text{Cu}^{2+}(\text{aq}, 1 \text{ M}) \mid \text{Cu(s)}$

The standard reduction potentials are:

$$E^\circ(\text{Zn}^{2+}/\text{Zn}) = -0.76 \text{ V}, \quad E^\circ(\text{Cu}^{2+}/\text{Cu}) = +0.34 \text{ V}$$

Corrosion slowly coats the surfaces of metallic objects with oxides or other salts of the metal. The rusting of iron, tarnishing of silver, development of green coating on copper and bronze are some of the examples of corrosion.

In corrosion, a metal is oxidised by loss of electrons to oxygen and formation of oxides. Corrosion of iron occurs in presence of water and air. The chemistry of corrosion is quite complex but it may be considered essentially as an electrochemical phenomenon.

Electrons released at anodic spot move through the metal and go to another spot on the metal and reduce oxygen in the presence of H^+ (which is believed to be available from H_2CO_3 formed due to dissolution of carbon dioxide from air into water. Hydrogen ion in water may also be available due to dissolution of other acidic oxides from the atmosphere). This spot behaves as cathode with the reaction

Prevention of corrosion is of prime importance. It not only saves money but also helps in preventing accidents such as a bridge collapse or failure of a key component due to corrosion. One of the simplest methods of preventing corrosion is to prevent the surface of the metallic object to come in contact with atmosphere

Zinc metal is used to prevent corrosion of iron by galvanization. The protection is based on the principle of a more active metal preventing corrosion of a less active one.

- i Write the cell reaction and calculate the EMF of the cell.

OR

- ii Write the chemical equation occurs at anode and cathode during rusting of iron. Write the formula of rust.
- iii Explain how zinc prevents corrosion of iron.

"Importance of Coordination Compounds"

The coordination compounds are of great importance. These compounds are widely present in the mineral, plant and animal worlds. Coordination compounds find use in many qualitative and quantitative chemical analysis. The familiar colour reactions given by metal ions with a number of ligands (especially chelating ligands), as a result of formation of coordination entities, form the basis for their detection and estimation by classical and instrumental methods of analysis. Some important extraction processes of metals, like those of silver and gold, make use of complex formation.

Coordination compounds are of great importance in biological systems. The pigment responsible for photosynthesis, chlorophyll, is a coordination compound of magnesium. Haemoglobin, the red pigment of blood which acts as oxygen carrier is a coordination compound of iron. Vitamin B₁₂.

Coordination compounds are used as catalysts for many industrial processes. Examples include rhodium complex, a Wilkinson catalyst, is used for the hydrogenation of alkenes.

Cisplatin is a coordination compound used as an anticancer drug. It binds to DNA, causing cells to stop dividing. The compound trans-platin, however, is not effective as an anticancer drug.

- Write the formula of Wilkinson catalyst.
- Write the IUPAC name of cisplatin.
- Which type of isomerism is shown by Cisplatin. Draw the isomers of Cisplatin.

OR

Why is the cis form effective while trans form is not?

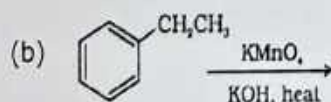
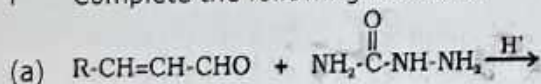
SECTION E

The following questions are long answer type and carry 5 marks each. All questions have an internal choice

- Define the order of reaction.
 - For a first order reaction, show that time required for 99% completion is twice the time required for the completion of 90% of reaction.
 - The activation energy for the reaction $2 \text{HI(g)} \rightarrow \text{H}_2 + \text{I}_2 \text{(g)}$ is $209.5 \text{ kJ mol}^{-1}$ at 581K. Calculate the fraction of molecules of reactants having energy equal to or greater than activation energy?

OR

- Define collision frequency.
 - Show that in a first order reaction, time required for completion of 99.9% is 10 times of half-life ($t_{1/2}$) of the reaction.
 - The rate of a reaction quadruples when the temperature changes from 293 K to 313 K. Calculate the energy of activation of the reaction assuming that it does not change with temperature.
- Complete the following reactions-



- An organic compound (A) with molecular formula C₈H₈O forms an orange-red precipitate with 2,4-DNP reagent and gives yellow precipitate on heating with iodine in the presence of sodium hydroxide. It neither reduces Tollens' or Fehlings' reagent, nor does it decolourise bromine water or Baeyer's reagent. On drastic oxidation with chromic acid, it gives a carboxylic acid (B) having molecular formula C₇H₆O₂. Identify the compounds (A) and (B) and explain the reactions involved.

OR

- 33
- i Write product and name of reaction involved, when ethanoic acid heated with concentrated Br_2 in presence of red phosphorous.
 - ii Write suitable chemical test to distinguish benzaldehyde and propanal.
 - iii An organic compound with the molecular formula $\text{C}_9\text{H}_{10}\text{O}$ forms 2,4-DNP derivative, reduces Tollens' reagent and undergoes Cannizzaro reaction. On vigorous oxidation, it gives 1,2-benzenedicarboxylic acid. Identify the compound and write the chemical reactions involved.
 - i What happens when D-glucose is treated with the following reagents? (a) HI (b) Bromine water (c) HNO_3 (Write the reactions also)
 - ii What are the hydrolysis products of (a) sucrose and (b) lactose?

OR

- i What is the basic structural difference between starch and cellulose?
- ii Why sucrose is reducing sugar whereas maltose is reducing although both are disaccharides.
- iii What is the difference between a nucleoside and a nucleotide?
- iv Enumerate the reactions of D-glucose which cannot be explained by its open chain structure (Any two)

05/01/2026

SET A

केंद्रीय विद्यालय संगठन, अहमदाबाद संभाग
Kendriya Vidyalaya Sangathan, Ahmedabad Region

कक्षा बारहवीं प्री-बोर्ड - द्वितीय परीक्षा 2025-26
PRE-BOARD II EXAMINATION 2025-26 for Class XII

SUBJECT: CHEMISTRY (043)

M.M.: 70

TIME: 3 Hours

सामान्य निर्देश / GENERAL INSTRUCTIONS:

1. There are 33 questions in this question paper with internal choice.
2. Section A consists of 16 multiple -choice questions carrying 1 mark each.
3. Section B consists of 5 short answer questions carrying 2 marks each.
4. Section C consists of 7 short answer questions carrying 3 marks each.
5. Section D consists of 2 case - based questions carrying 4 marks each.
6. Section E consists of 3 long answer questions carrying 5 marks each.
7. All questions are compulsory.
8. Use of log tables and calculators is not allowed. Required log values are given below -
(antilog 0.53=3.41, antilog 0.167=1.47, log 3 =0.47, log 5=0.7, log 7 =0.84, log 2= 0.30)

SECTION A

The following questions are multiple -choice questions with one correct answer. Each question carries 1 mark. There is no internal choice in this section.

1. Molecule whose mirror image is non-superimposable over them are known as optical isomers. Which of the following molecules is chiral in nature?
(a) 1 - bromo-3-methyl butane (b) 2 - bromobutane
(c) 3 - Bromo pentane (d) 2 - bromo propan -2-ol
2. For the best yield of ether from Williamson's synthesis, the alkyl halide should preferable be:
(a) Primary (b) Secondary
(c) Tertiary (d) All
3. What is the decreasing order of the basicity of 1°, 2° and 3° amines and ammonia in aqueous medium?
(a) $\text{NH}_3 > \text{C}_2\text{H}_5\text{NH}_2 > (\text{C}_2\text{H}_5)_2\text{NH} > (\text{C}_2\text{H}_5)_3\text{N}$
(b) $(\text{C}_2\text{H}_5)_3\text{N} > (\text{C}_2\text{H}_5)_2\text{NH} > \text{C}_2\text{H}_5\text{NH}_2 > \text{NH}_3$
(c) $(\text{C}_2\text{H}_5)_2\text{NH} > \text{C}_2\text{H}_5\text{NH}_2 > (\text{C}_2\text{H}_5)_3\text{N} > \text{NH}_3$
(d) $(\text{C}_2\text{H}_5)_2\text{NH} > (\text{C}_2\text{H}_5)_3\text{N} > \text{C}_2\text{H}_5\text{NH}_2 > \text{NH}_3$
4. $\text{RMgX} + \text{CO}_2 \rightarrow \text{X}$ Hydrolysis $\rightarrow \text{Y}$; 'Y' in the above reaction is?
(a) RCOOH (b) RCHO
(c) RCOR (d) RCOOR
5. Glucose reacts with hydroxylamine to form an oxime. This confirms the presence of:
(a) carbonyl group (b) straight chain of six carbon atoms
(c) primary alcoholic group (d) secondary alcoholic group

- 6 Vitamin B₂ is :
 (a) Riboflavin (b) Ascorbic acid
 (c) Thiamine (d) Pyridoxine
- 7 Why alkyl halides are considered to be very reactive compounds towards nucleophile?
 (a) they have an electrophilic carbon & a bad leaving group
 (b) they have a nucleophilic carbon & a good leaving group
 (c) they have a nucleophilic carbon & a bad leaving group
 (d) they have an electrophilic carbon & a good leaving group
- 8 The quantity of charge required to obtain one mole of aluminium from Al₂O₃ is.....
 (a) 1 F (b) 2 F
 (c) 3 F (d) 6 F
- 9 Magnetic moments (BM) of transition elements 1,2,3 and 4 are:
- | | | | |
|------|------|------|------|
| 1 | 2 | 3 | 4 |
| 2.84 | 4.90 | 5.92 | 3.87 |
- (a) 1=Ti²⁺, 2=Cr²⁺, 3=Mn²⁺, 4=V²⁺
 (b) 1=Ti²⁺, 2=Mn²⁺, 3=Cr²⁺, 4=V²⁺
 (c) 1=V²⁺, 2=Cr²⁺, 3=Mn²⁺, 4=Ti²⁺
 (d) 1=Ti²⁺, 2=Cr²⁺, 3=V²⁺, 4=Mn²⁺
- 10 Zr and Hf have almost equal atomic and ionic radii because of
 (a) diagonal relationship (b) lanthanoid contraction
 (c) actinoid contraction (d) belonging to the same group
- 11 What are the units of k for the rate law: Rate = k[A][B]², when the concentration unit is mol/L?
 (a) L mol⁻¹ s⁻¹ (b) L² mol⁻² s⁻¹
 (c) s⁻¹ (d) L⁻¹ mol s⁻¹
- 12 In comparison to a 0.01 M solution of glucose, the elevation in boiling point of a 0.01 M AlCl₃ solution is :-
 (a) Same (b) about twice
 (c) about three times (d) about four times.

Question number 13-16 are of assertion-reason type questions. Select the most appropriate answer from the options given below:

- (a) Both A and R are true and R is the correct explanation of A
 (b) Both A and R are true but R is not the correct explanation of A.
 (c) A is true but R is false.
 (d) A is false but R is true.
- 13 **Assertion:** Decomposition of ammonia on a hot Pt surface is a zero reaction.
Reason: Rate of the reaction depends on concentration of ammonia.
- 14 **Assertion:** Secondary cells are used in invertors.
Reason: A primary cell can be recharged by passing current through it in the opposite direction after it has been used.
- 15 **Assertion:** SN₂ reaction of an optically active aryl halide with an aqueous solution of KOH always gives an alcohol with opposite sign of rotation.
Reason: SN₂ reactions always proceed with inversion of configuration.
- 16 **Assertion:** A solution of acetone and chloroform has lower vapour pressure than that of pure components.
Reason: Acetone and chloroform forms intramolecular hydrogen bond in the solution.

SECTION B

This section contains 5 questions with internal choice in one question. These questions are very short answer type and carry 2 marks each.

- 17 (i) Arrange the following in the increasing order of boiling point
0.1M $\text{Al}_2(\text{SO}_4)_3$, 0.1M KCl, 0.1M Glucose, 0.1M $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$
- (ii) What happens when blood cells are kept in 0.2% NaCl solution.
- 18 Write the following reactions:
(a) Cannizzaro reaction of Benzaldehyde (b) Aldol condensation of Ethanal
- 19 (i) Write chemical equation for the following conversions:
 $\text{CH}_3-\text{CH}_2-\text{Cl}$ into $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{NH}_2$
- (ii) Write structures and IUPAC names of the amide which gives ethanamine by Hoffmann bromamide reaction.
- 20 Explain giving reasons:
(i) Transition metals and many of their compounds show paramagnetic behaviour.
(ii) The enthalpies of atomisation of the transition metals are high.

OR

- Explain giving reasons:
(i) The transition metals generally form coloured compounds.
(ii) Transition metals and their many compounds act as good catalyst
- 21 Determine the amount of CaCl_2 ($i = 2.47$) dissolved in 2.5 litre of water such that its osmotic pressure is 0.75 atm at 27°C

SECTION C

This section contains 7 questions with internal choice in one question. These questions are short answer type and carry 3 marks each.

- 22 (i) Write the formulas for the following coordination compound:
(a) tetraamminediaquacobalt(III) chloride
(b) tris(ethane-1,2-diamine) chromium(III) chloride
- (ii) Explain on the basis of valence bond theory that $[\text{Ni}(\text{CN})_4]^{2-}$ ion with square planar structure is diamagnetic and the $[\text{NiCl}_4]^{2-}$ ion with tetrahedral geometry is paramagnetic.
- 23 (i) How will you convert 4-nitrotoluene to 2-bromobenzoic acid ?
(ii) Although amino group is o- and p- directing in aromatic electrophilic substitution reactions, aniline on nitration gives a substantial amount of m-nitroaniline
- 24 (i) Describe the preparation of potassium dichromate from iron chromite ore.
(ii) What is the effect of increasing pH on a solution of potassium dichromate?
- 25 2 g of benzoic acid ($\text{C}_6\text{H}_5\text{COOH}$) dissolved in 25 g of benzene shows a depression in freezing point equal to 1.62 K. Molal depression constant for benzene is 4.9 K kg mol^{-1} . What is the percentage association of acid if it forms dimer in solution?
- 26 (i) Write the equations involved in the following reactions:
(a) Reimer - Tiemann reaction (b) Kolbe's reaction
- (ii) Show how will you synthesise 1-phenylethanol from a suitable alkene.
- 27 Determine the values of equilibrium constant (K_c) and ΔG° for the following reaction
 $\text{Ni(s)} + 2\text{Ag}^+(\text{aq}) \rightarrow \text{Ni}^{2+}(\text{aq}) + 2\text{Ag(s)}$, $E^\circ = 1.05\text{ V}$

OR

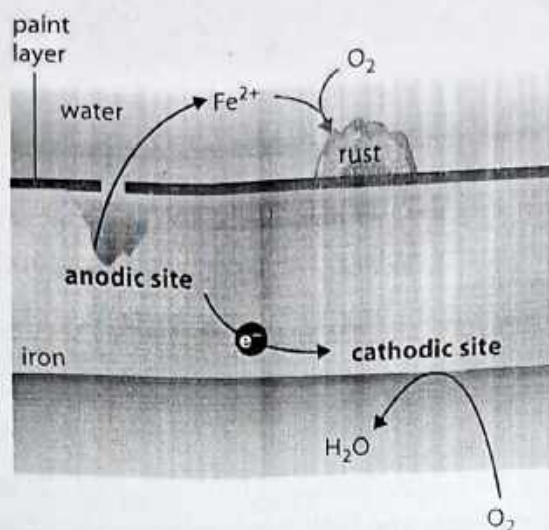
- Define conductivity. Explain the variation of conductivity and molar conductivity with concentration. Also draw the graph.
- 28 Explain why
(i) the dipole moment of chlorobenzene is lower than that of cyclohexyl chloride? (ii) alkyl halides, though polar, are immiscible with water?
(iii) Grignard reagents should be prepared under anhydrous conditions?

SECTION D

The following questions are case -based questions. Each question has an internal choice and carries 4 (1+1+2) marks each. Read the passage carefully and answer the questions that follow.

29

"Electrochemical Cells and Corrosion"



An electrochemical cell consists of zinc and copper electrodes. The cell notation is:



The standard reduction potentials are:

$$E^\circ(\text{Zn}^{2+}/\text{Zn}) = -0.76 \text{ V}, \quad E^\circ(\text{Cu}^{2+}/\text{Cu}) = +0.34 \text{ V}$$

Corrosion slowly coats the surfaces of metallic objects with oxides or other salts of the metal. The rusting of iron, tarnishing of silver, development of green coating on copper and bronze are some of the examples of corrosion.

In corrosion, a metal is oxidised by loss of electrons to oxygen and formation of oxides. Corrosion of iron occurs in presence of water and air. The chemistry of corrosion is quite complex but it may be considered essentially as an electrochemical phenomenon.

Electrons released at anodic spot move through the metal and go to another spot on the metal and reduce oxygen in the presence of H^+ (which is believed to be available from H_2CO_3 formed due to dissolution of carbon dioxide from air into water. Hydrogen ion in water may also be available due to dissolution of other acidic oxides from the atmosphere). This spot behaves as cathode with the reaction

Prevention of corrosion is of prime importance. It not only saves money but also helps in preventing accidents such as a bridge collapse or failure of a key component due to corrosion. One of the simplest methods of preventing corrosion is to prevent the surface of the metallic object to come in contact with atmosphere

Zinc metal is used to prevent corrosion of iron by galvanization. The protection is based on the principle of a more active metal preventing corrosion of a less active one.

- i Write the cell reaction and calculate the EMF of the cell.

OR

- ii Write the chemical equation occurs at anode and cathode during rusting of iron.
 iii Write the formula of rust.
 iii Explain how zinc prevents corrosion of iron.

"Importance of Coordination Compounds"

The coordination compounds are of great importance. These compounds are widely present in the mineral, plant and animal worlds. Coordination compounds find use in many qualitative and quantitative chemical analysis. The familiar colour reactions given by metal ions with a number of ligands (especially chelating ligands), as a result of formation of coordination entities, form the basis for their detection and estimation by classical and instrumental methods of analysis. Some important extraction processes of metals, like those of silver and gold, make use of complex formation.

Coordination compounds are of great importance in biological systems. The pigment responsible for photosynthesis, chlorophyll, is a coordination compound of magnesium. Haemoglobin, the red pigment of blood which acts as oxygen carrier is a coordination compound of iron. Vitamin B₁₂.

Coordination compounds are used as catalysts for many industrial processes. Examples include rhodium complex, a Wilkinson catalyst, is used for the hydrogenation of alkenes.

Cisplatin is a coordination compound used as an anticancer drug. It binds to DNA, causing cells to stop dividing. The compound trans-platin, however, is not effective as an anticancer drug.

- Write the formula of Wilkinson catalyst.
- Write the IUPAC name of cisplatin.
- Which type of isomerism is shown by Cisplatin. Draw the isomers of Cisplatin.

OR

Why is the cis form effective while trans form is not?

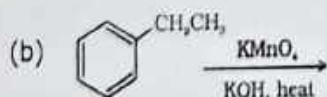
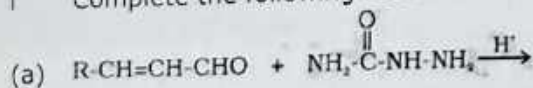
SECTION E

The following questions are long answer type and carry 5 marks each. All questions have an internal choice

- Define the order of reaction.
 - For a first order reaction, show that time required for 99% completion is twice the time required for the completion of 90% of reaction.
 - The activation energy for the reaction $2 \text{HI(g)} \rightarrow \text{H}_2 + \text{I}_2 \text{(g)}$ is $209.5 \text{ kJ mol}^{-1}$ at 581 K . Calculate the fraction of molecules of reactants having energy equal to or greater than activation energy?

OR

- Define collision frequency.
 - Show that in a first order reaction, time required for completion of 99.9% is 10 times of half-life ($t_{1/2}$) of the reaction.
 - The rate of a reaction quadruples when the temperature changes from 293 K to 313 K . Calculate the energy of activation of the reaction assuming that it does not change with temperature.
- Complete the following reactions-



- An organic compound (A) with molecular formula $\text{C}_8\text{H}_8\text{O}$ forms an orange-red precipitate with 2,4-DNP reagent and gives yellow precipitate on heating with iodine in the presence of sodium hydroxide. It neither reduces Tollens' or Fehlings' reagent, nor does it decolourise bromine water or Baeyer's reagent. On drastic oxidation with chromic acid, it gives a carboxylic acid (B) having molecular formula $\text{C}_7\text{H}_6\text{O}_2$. Identify the compounds (A) and (B) and explain the reactions involved.

OR

- 33
- i Write product and name of reaction involved, when ethanoic acid heated with concentrated Br_2 in presence of red phosphorous.
 - ii Write suitable chemical test to distinguish benzaldehyde and propanal.
 - iii An organic compound with the molecular formula $\text{C}_9\text{H}_{10}\text{O}$ forms 2,4-DNP derivative, reduces Tollens' reagent and undergoes Cannizzaro reaction. On vigorous oxidation, it gives 1,2-benzenedicarboxylic acid. Identify the compound and write the chemical reactions involved.
- i What happens when D-glucose is treated with the following reagents?
(a) HI (b) Bromine water (c) HNO_3 (Write the reactions also)
- ii What are the hydrolysis products of (a) sucrose and (b) lactose?

OR

- i What is the basic structural difference between starch and cellulose?
- ii Why sucrose is reducing sugar whereas maltose is reducing although both are disaccharides.
- iii What is the difference between a nucleoside and a nucleotide?
- iv Enumerate the reactions of D-glucose which cannot be explained by its open chain structure (Any two)

06/01/2026

केंद्रीय विद्यालय संगठन, अहमदाबाद संभाग
KENDRIYA VIDYALAYA SANGATHAN, AHMEDABAD REGION

SET A

कक्षा बारहवीं प्री बोर्ड II परीक्षा 2025

PRE BOARD II EXAMINATION for Class XII 2025

SUBJECT : COMPUTER SCIENCE (083)

TIME: 3 HOURS

MAX. MARKS: 70

सामान्य निर्देश/GENERAL INSTRUCTIONS:

This question paper contains 37 questions.

- All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
- Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
- Section C consists of 3 questions (29 to 31). Each question carries 3 Marks.
- Section D consists of 4 questions (32 to 35). Each question carries 4 Marks.
- Section E consists of 2 questions (36 to 37). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.
- In case of MCQ, text of the correct answer should also be written.

SECTION A

- 1 State True or False
In Python, a dictionary is an ordered collection of items(key:value pairs). 1
- 2 What will be the output of the following code?
L = ["My", "Computer", "Lab"]
print(L[1][0] + L[2][-1])
a) Cb b) cb c) cB d) ab 1
- 3 What will be the output of following expression?
(5<10) and (10<5) or (3<18) and not 8<18
a) True b) False c) Error d) No output 1
- 4 In SQL, which type of Join(s) may contain duplicate column(s)? 1
- 5 What will be output of the following code snippet?
Msg='Wings of Fire!'
print (Msg[-9: :2]) 1
- 6 Which of the following options will not result in an error when performed on
types in python where tp = (5,2,7,0,3) ? 1
a) Tp[1] = 2 b) tp.append(2)
c) tp1 = tp+tp d) tp.sum()
- 7 The following expression will evaluate to
print(2+(5%5)**2**1/5+2)
a) 4.0 b) 4.6 c) 5.4 d) 5.0 1

- 8 Consider the given SQL Query: 1
`SELECT job_title, AVG(salary) FROM employees HAVING AVG(salary) > 50000
GROUP BY job_title;`
- Aarav executes the above query but does not get the correct output. Write the correction.
- 9 What will be the output of the following Python code? 1
try:
 x = int("abc")
except ValueError:
 print("Value Error occurred!")
except Exception:
 print("Some other error!")
- a) Value Error occurred! b) Some other error!
c) abc d) Nothing is printed
- 10 What will be the output of the following Python code? 1
`student = {"name": "Rohan", "grade": "A", "subject": "Maths"}
print(student.get("age", "Data Not Available"))`
- a) Rohan b) A c) None d) Data Not Available
- 11 What possible output is expected to be displayed on the screen at the time of execution of the following Python program? 1
`import random
nums = [5, 15, 25, 35, 45]
start = random.randint(1, 2)
end = random.randint(2, 3)
for i in range(start, end + 1):
 print(nums[i], end="#")`
- a) 5#15#25# b) 15#35# c) 15#25#35#45# d) 25#
- 12 What will be the output of the following code: 1
`sal = 5000
def inc_sal(per):
 global sal
 inc = sal * (per / 100)
 sal += inc
inc_sal(10)
print(sal, end='%')
sal=6000
print(sal, end='$')`
- a) 5000%6000\$ b) 5500.0%6000\$
c) 5000.0\$6000% d) 5500%5500\$
- 13 Which SQL command can change the degree of an existing relation? 1
a) Insert b) Delete c) Both a) & b) d) Drop

- 14 What is the output of the expression?
`St1="wonder@land@city"`
`print(St1.split("@"))` 1
- a) ("wonder", "@", "land", "@", "city")
 b) ["wonder", "@", "land", "@", "city"]
 c) ["wonder", "land", "city"]
 d) Error
- 15 In SQL, a table initially contains 4 columns and 8 rows. If 3 more columns and 2 more rows are added to the existing table, what will be the updated cardinality of the table? 1
- a) 6 b) 7 c) 10 d) 11
- 16 Which statement is used to modify data in a table? 1
- a) CHANGE b) MODIFY c) UPDATE d) ALTER
- 17 The protocol used identify the corresponding url from ip address is _____ 1
- a)IP b)HTTP c)TCP d)FTP
- 18 The device used to connect different networks is .. 1
- a)Bridge b)Router c)Modem d)Switch
- 19 Which of the following is used to create the structure of a web page? 1
- a) HTML b) CSS c) JavaScript d) FTP

Q20 and Q21 are Assertion(A) and Reason(R) based questions. Mark the correct choice as:

- a) Both A and R are True and R is the correct explanation for A.
 b) Both A and R are True and R is not the correct explanation for A.
 c) A is True but R is False.
 d) A is False but R is True.

- 20 Assertion (A): The expression "hello".upper() in Python will modify the original string. 1
 Reason (R): The upper() method converts all characters of a string to uppercase and updates the same string object.
- 21 Assertion (A) : Both WHERE and HAVING clauses are used to specify conditions. 1
 Reason(R) : The WHERE and HAVING clauses are interchangeable.

SECTION B

- 22 A. Differentiate list and tuple with respect to mutability. Give suitable example to illustrate the same. 2

OR

B. Explain the difference between break and continue statements in Python with a suitable example.

- 23 Rewrite the following code in Python after removing all syntax error(s). 2
 Underline
 each correction done in the code.

```
p=30
for c in range(0,p)
    if c%4==0:
        print (c*4)
    elseif c%5==0:
        print (c+3)
    else
        Print(c+10)
```
- 24 A. (Answer using Python built-in methods/functions only): 2
 I. Write a statement to count the occurrences of 4 in L1.
 II. Write a statement to sort the elements of list L1 in ascending order.
 OR
 B. Predict the output of the following Python code:

```
Str="Computer Science with Python"
print(Str.partition("with"))
print(Str.find("e",10,20))
```
- 25 A. Write a function update_price () in Python that accepts a dictionary items and 2
 two parameters — item_name and new_price.
 If the item_name exists in the dictionary, update its price with new_price.
 If it does not exist, print "Item not found".
 OR
 B. Write a Python function add_item() that accepts a list items and an element
 new_item. The function should add the element to the list only if it does not
 already exist. If the element already exists in the list, print "Item already exists"
 instead of adding it.
- 26 Predict the output of the Python code given below : 2

```
emp = {"East": [500,900],"West": [700,800],"North":  
[700,800],"South":{800,700}}  
value = []  
for n in emp:  
    r1 = emp[n]  
    x = (r1[0] + r1[1]) / 2  
    if x > 700:  
        value.append(n)  
print(value)
```
- 27 A. Write suitable commands to do the following in MySQL. 2
 I. Delete the values from table DATA.
 II. Open a database named SQP
 OR
 B. Differentiate between alter and update query in SQL with a suitable example.

28 A. Define the following terms:

I. Repeater

II. Modem

OR

B.

I. How is it easier to diagnose fault in Star topology than in Bus topology ?

II. Mala is a bit confused between the terms Web server and Web browsers. Help her in understanding both the terms with the help of suitable example.

SECTION-C

29 A. Write a Python function that count the lines start with the word "the" in a file "xyz.txt" and display it at the end.

OR

B. Write a Python function that count total number of vowels in a file "abc.txt"

30 There is a stack named Uniform that contains records of uniforms Each record is represented as a list containing uid, uame, ucolour, useize, uprice. Write the following user-defined functions in python to perform the specified operations on the stack Uniform :

I Push_Uniform(new_uniform): adds the new uniform record onto the stack

II Pop_Uniform(): pops the topmost record from the stack and returns it. If the stack is already empty, the function should display "underflow".

III Peep(): This function display the topmost element of the stack without deleting it. if the stack is empty, the function should display 'None'.

31 A. Predict the output of the following Python code:

```
s1="LTC-26"
s2=""
i=0
while i<len(s1):
    if s1[i]>='0' and s1[i]<='9':
        Num=int(s1[i])
        Num-=1
        s2=s2+str(Num)
    elif s1[i]>='A' and s1[i]<='Z':
        s2=s2+s1[i+1]
    else:
        s2=s2+'^'
    i+=1
print(s2)
```

OR

B. Predict the output of the Python code given below:

```
T= ["20", "50", "30", "40"]
```

```
Total= 0
```

```
for I in [1,2,3,4]:
```

```
    newT=T[Counter]
```

```
    Total= float (newT) + 1
```

```
    print(Total)
```

```
    Counter=Counter-1
```

SECTION-D

- 32 Consider the following table named Vehicle and state the query or state the output

4

Table:- Vehicle

VID	LicensePlate	VType	Owner	Cost	Contact	State
1	MH12AB1234	Car	Raj Kumar	65	9876543210	Maharastra
2	DL3CDE5678	Truck	Arjith Singh	125	8765432109	New Delhi
3	KA04FG9012	Motor cycle	Prem Sharma		9123456789	Karnataka
4	TN07GH3456	SUV	Shyad Usman	65	9987654321	Tamil Nadu
5	KA01AB1234	Car	Devid jhon	65	9876543210	Karnataka
6	TN02CD5678	Truck	Anjali Iyer	125	8765432109	Tamil Nadu
7	AP03EF9012	Motor cycle	Priya Reddy		9123456789	Andhra Pradesh

A. Write the following queries:

- To display number of different vehicle type from the table vehicle
- To display number of records entered vehicle type wise whose minimum cost is above 80
- To set the cost as 45 for those vehicles whose cost is not mentioned
- To remove all motor cycle from vehicle

OR

B. Predict the output of the following:

- SELECT VTYPE,AVG(COST) FROM VEHICLE GROUP BY VTYPE;
- SELECT OWNER ,VTYPE,CONTACT FROM VEHICLE WHERE OWNER LIKE "P%";
- SELECT COUNT(*) FROM VEHICLE WHERE COST IS NULL;
- SELECT MAX(COST) FROM VEHICLE;

- 33 Abhishek is making a software on "Countries & their Capitals" in which various records are to be stored/retrieved in CAPITAL.CSV data file. It consists of some records. As a programmer, you have to help him to successfully execute the program.

4

A. Write a function in Python named AddNewRec(Country,Capital) to append following records in the file "CAPITAL.CSV".

```
["FRANCE","PARIS"]
```

```
["SRILANKA","COLOMBO"]
```

B. Write a function in Python named ShowRec() that will show all the contents of CAPITAL.CSV

- 34 Salman has been entrusted with the management of Airlines Database. He needs to access some information from Airports and Flights tables for a survey. Help him extract the following information by writing the desired SQL queries as mentioned below.

4

Table - Airports

A_ID	A_Name	City	IATACode
1	Indira Gandhi Intl	Delhi	DEL
2	Chhatrapati Shivaji Intl	Mumbai	BOM
3	Rajiv Gandhi Intl	Hyderabad	HYD
4	Kempegowda Intl	Bengaluru	BLR
5	Chennai Intl	Chennai	MAA
6	Netaji Subhas Chandra Bose Intl	Kolkata	CCU

Table - Flights

F_ID	A_ID	F_No	Departure	Arrival
1	1	6E 1234	DEL	BOM
2	2	AI 5678	BOM	DEL
3	3	SG 9101	BLR	MAA
4	4	UK 1122	DEL	CCU
5	1	AI 101	DEL	BOM
6	2	6E 204	BOM	HYD
7	1	AI 303	HYD	DEL
8	3	SG 404	BLR	MAA

- I To display airport name, city, flight id, flight number corresponding flights whose departure is from delhi
 II Display the flight details of those flights whose arrival is BOM, MAA or CCU
 III To delete all flights whose flight number starts with 6E.
 IV A) To display Cartesian Product of two tables

OR

- B) To display airport name, city and corresponding flight number

- 35 MySQL database named MyDB has a product_inventory table in MySQL which contains the following attributes:

4

- Item_code: Item code (Integer)
- Product_name: Name of product (String)
- Quantity: Quantity of product (Integer)
- Cost: Cost of product (Integer)

Consider the following details to establish Python-MySQL connectivity:

- Username: admin
- Password: computer24
- Host: localhost

Write a Python program to change the Quantity of the product to 91 whose Item_code is 208 in the product_inventory table.

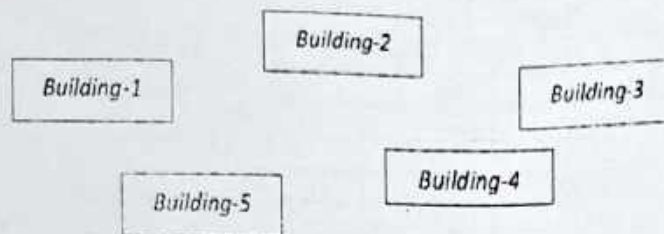
SECTION-E

- 36 Ms. Neha, a librarian at a public library, needs to maintain records of books. Each record should include: Book_ID, Title, Author, and Price. 2+3

Write the Python functions to:

- Input book data and append it to a binary file named Books.dat.
- Update the price of all books written by "Ruskin Bond" to ₹500.

- 37 PVS Computers decided to open a new office at Ernakulum, the office consist of Five Buildings and each contains number of computers. The details are shown below. 5



Distance between the buildings

Building 1 and 2	20 Meters
Building 2 and 3	50 Meters
Building 3 and 4	120 Meters
Building 3 and 5	70 Meters
Building 1 and 5	65 Meters
Building 2 and 5	50 Meters

Number of Computers in

Block	Number of Computers
HR	60
Finance	40
IT	90
Logistics	35

The Company has now decided to connect network in buildings.

- Suggest the most suitable place (i.e. building) to house the server of this organization.

Also give a reason to justify your suggested location.

- Where would you place Hub/Switch? Answer with justification.
- Suggest a cable layout of connection between the buildings (Topology).
- Do you think anywhere Repeaters required in the campus? Why
- Suggest a protocol that shall be needed to provide Video Conferencing solution between Ernakulum Campus and Ranchi Campus.

OR

What type of network (PAN, LAN, MAN, or WAN) will be set up among the computers connected in the Ernakulum campus?

06/01/2026

केंद्रीय विद्यालय संगठन, अहमदाबाद संभाग
KENDRIYA VIDYALAYA SANGATHAN, AHMEDABAD REGION
कक्षा बारहवीं प्री बोर्ड II परीक्षा 2025

SET B

PRE BOARD II EXAMINATION for Class XII 2025

SUBJECT : COMPUTER SCIENCE (083)

TIME: 3 HOURS

MAX. MARKS: 70

सामान्य निर्देश/GENERAL INSTRUCTIONS:

This question paper contains 37 questions.

- All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
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- Section C consists of 3 questions (29 to 31). Each question carries 3 Marks.
- Section D consists of 4 questions (32 to 35). Each question carries 4 Marks.
- Section E consists of 2 questions (36 to 37). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.
- In case of MCQ, text of the correct answer should also be written.

SECTION A

- 1 State True or False
In Python, a dictionary is an ordered collection of items(key:value pairs). 1
- 2 In SQL, what is the difference between equi join and natural join ? 1
- 3 What will be the output of following expression?
(5<10) and (10<5) or (3<18) and not 8<18 1
a) True b) False c) Error d) No output
- 4 What will be the output of the following code? 1
L = ["My", "Computer", "Lab"]
print(L[0][0] + L[1][-1])
a) Cr b) cb c) Mr d) Mb
- 5 What will be output of the following code snippet? 1
Msg='Wings of Fire!'
print (Msg[-12: -14:2])
- 6 What will be the output of the following Python code? 1
student = {"name": "Rohan", "grade": "A", "subject": "Maths"}
print(student.get("age", "Data Not Available"))
a) Rohan b) Data Not Available c) None d) A
- 7 The following expression will evaluate to 1
print(2+(5%5)**2**1/5+2)
a) 4.6 b) 4.0 c) 5.4 d) 5.0

- 8 Consider the given SQL Query:
 SELECT job_title, AVG(salary) FROM employees HAVING AVG(salary) > 50000
 GROUP BY job_title;
 Aarav executes the above query but does not get the correct output.
 Write the correction. 1
- 9 What will be the output of the following Python code?
 try:
 x = int("abc")
 except ValueError:
 print("Value Error occurred!")
 except Exception:
 print("Some other error!") 1
- a) Value Error occurred! b) Some other error!
 c) abc d) Nothing is printed
- 10 Which of the following options will not result in an error when performed on
 types in python where tp = (5,2,7,0,3) ? 1
- a) Tp[1] = 2 b) tp.append(2)
 c) tp1 = tp+tp d) tp.sum()
- 11 What possible output is expected to be displayed on the screen at the time of
 execution of the following Python program? 1
- import random
 nums = [5, 15, 25, 35, 45]
 start = random.randint(1, 2)
 end = random.randint(2, 3)
 for i in range(start, end + 1):
 print(nums[i], end="#")
- a) 5#15#25#
 b) 15#35#
 c) 15#25#35#45#
 d) 25#
- 12 Which of the following is used to create the structure of a web page? 1
- a) HTML b) CSS c) JavaScript d) FTP
- 13 Which SQL command can change the cardinality of an existing relation? 1
- a) Insert b) Delete c) Both a) & b) d) Drop
- 14 What is the output of the expression? 1
- St1="wonder@land@city"
 print(St1.partition("@"))
- a) ("wonder", "@", "land", "@", "city")
 b) ["wonder", "@", "land@city"]
 c) ["wonder", "land", "city"]
 d) Error

- 15 In SQL, a table initially contains 4 columns and 8 rows. If 3 more columns and 2 more rows are added to the existing table, what will be the updated cardinality of the table? 1
a) 6 b) 7 c) 10 d) 11
- 16 Which statement is used to modify column name in a table? 1
(a) CHANGE (b) MODIFY (c) UPDATE (d) ALTER
- 17 The protocol used identify the corresponding url from ip address is ____ 1
a)IP b)HTTP c)TCP d)FTP
- 18 The device used to convert analog signal to digital signal and vice versa is .. 1
a)Amplifier b)Router c)Modem d)Switch
- 19 What will be the output of the following code: 1
sal = 5000
def inc_sal(per):
 global sal
 inc = sal * (per / 100)
 sal += inc
inc_sal(10)
print(sal,end='%')
sal=6000
print(sal,end='\$')
a) 5000%6000\$ b) 5500.0%6000\$
c) 5000.0\$6000% d) 5500%5500\$

Q20 and Q21 are Assertion(A) and Reason(R) based questions. Mark the correct choice as:

- a) Both A and R are True and R is the correct explanation for A.
b) Both A and R are True and R is not the correct explanation for A.
c) A is True but R is False.
d) A is False but R is True.

- 20 Assertion (A): The expression "hello".upper() in Python will modify the original string. 1
Reason (R) : The upper() method converts all characters of a string to uppercase and updates the same string object.
- 21 Assertion (A) : Both WHERE and HAVING clauses are used to specify conditions. 1
Reason(R) : The WHERE and HAVING clauses are interchangeable.

SECTION B

- 22 A. Differentiate list and tuple with respect to mutability. Give suitable example to illustrate the same . 2
OR
B. Explain the difference between break and continue statements in Python with a suitable example.

- 23 Rewrite the following code in Python after removing all syntax error(s). 2
Underline each correction done in the code.

```
p=30
for c in range(0,p)
    if c%4==0:
        print (c*4)
    elseif c%5==0:
        print (c+3)
    else
        Print(c+10)
```
- 24 A. (Answer using Python built-in methods/functions only): 2
I. Write a statement to count the occurrences of 4 in L1.
II. Write a statement to sort the elements of list L1 in ascending order.
OR
B. Predict the output of the following Python code:

```
Str="Computer Science with Python"
print(Str.partition("with"))
print(Str.find("e",10,20))
```
- 25 A. Write a function update_price () in Python that accepts a dictionary items 2
and two parameters — item_name and new_price.
If the item_name exists in the dictionary, update its price with new_price.
If it does not exist, print "Item not found".
OR
B. Write a Python function add_item() that accepts a list items and an element
new_item. The function should add the element to the list only if it does not
already exist. If the element already exists in the list, print "Item already exists"
instead of adding it.
- 26 Predict the output of the Python code given below : 2

```
emp = {"East": [500,900],"West": [700,800],"North":  
[700,800],"South": [800,700]}  
value = [ ]  
for n in emp:  
    r1 = emp[n]  
    x = (r1[0] + r1[1]) / 2  
    if x > 700:  
        value.append(n)  
print(value)
```
- 27 A. Write suitable commands to do the following in MySQL. 2
I. Delete the values from table DATA.
II. Open a database named SQP
OR
B. Differentiate between alter and update query in SQL with a suitable example.

28 A. Define the following terms:

2

I. Repeater

II. Modem

OR

B.

I. How is it easier to diagnose fault in Star topology than in Bus topology ?

II. Mala is a bit confused between the terms Web server and Web browsers.

Help her in understanding both the terms with the help of suitable example.

SECTION C

29 A. Write a Python function that count the lines start with the word "the" in a file "xyz.txt" and display it at the end.

3

OR

B. Write a Python function that count total number of vowels in a file "abc.txt"

30 There is a stack named Uniform that contains records of uniforms Each record is represented as a list containing uid, uame, ucolour, use, uprice.

3

Write the following user-defined functions in python to perform the specified operations on the stack Uniform :

I Push_Uniform(new_uniform): adds the new uniform record onto the stack

II Pop_Uniform(): pops the topmost record from the stack and returns it. If the stack is already empty, the function should display "underflow".

III Peep(): This function display the topmost element of the stack without deleting it. if the stack is empty, the function should display 'None'.

31 A. Predict the output of the following Python code:

3

```
s1="LTC-26"
s2=""
i=0
while i<len(s1):
    if s1[i]>='0' and s1[i]<='9':
        Num=int(s1[i])
        Num-=1
        s2=s2+str(Num)
    elif s1[i]>='A' and s1[i]<='Z':
        s2=s2+s1[i+1]
    else:
        s2=s2+'^'
    i+=1
print(s2)
```

OR

B. Predict the output of the Python code given below:

```
T= ["20", "50", "30", "40"]
```

```
Counter=3
```

```
Total= 0
```

```
for I in [1,2,3,4]:
```

```
    newT=T[Counter]
```

```
    Total= float (newT) + I
```

```
    print(Total)
```

```
    Counter=Counter-1
```

- 32 Consider the following table named Vehicle and state the query or state the output

Table: - Vehicle

VID	LicensePlate	VType	Owner	Cost	Contact	State
1	MH12AB1234	Car	Raj Kumar	65	9876543210	Maharastra
2	DL3CDE5678	Truck	Arjith Singh	125	8765432109	New Delhi
3	KA04FC9012	Motor cycle	Prem Sharma		9123456789	Karnataka
4	TN07GH3456	SUV	Shyad Usman	65	9987654321	Tamil Nadu
5	KA01AB1234	Car	Devid jhon	65	9876543210	Karnataka
6	TN02CD5678	Truck	Anjali Iyer	125	8765432109	Tamil Nadu
7	AP03EF9012	Motor cycle	Priya Reddy		9123456789	Andhra Pradesh

A. Write the following queries:

- To display number of different vehicle type from the table vehicle
- To display number of records entered vehicle type wise whose minimum cost is above 80
- To set the cost as 45 for those vehicles whose cost is not mentioned
- To remove all motor cycle from vehicle

OR

B. Predict the output of the following:

- SELECT VTYPE,AVG(COST) FROM VEHICLE GROUP BY VTYPE;
- SELECT OWNER ,VTYPE,CONTACT FROM VEHICLE WHERE OWNER LIKE "P%";
- SELECT COUNT(*) FROM VEHICLE WHERE COST IS NULL;
- SELECT MAX(COST) FROM VEHICLE;

- 33 Abhishek is making a software on "Countries & their Capitals" in which various records are to be stored/retrieved in CAPITAL.CSV data file. It consists of some records. As a programmer, you have to help him to successfully execute the program.

A. Write a function in Python named AddNewRec(Country,Capital) to append following records in the file "CAPITAL.CSV".

```
["FRANCE","PARIS"]
["SRILANKA","COLOMBO"]
```

B. Write a function in Python named ShowRec() that will show all the contents of CAPITAL.CSV

- 34 Pranav is managing a Travel Database and needs to access certain information from the Hotels and Bookings tables for an upcoming tourism survey. Help him extract the required information by writing the appropriate SQL queries as per the tasks mentioned below:

4

Table: Hotels

H_ID	Hotel_Name	City	Star_Rating
1	Hotel1	Delhi	5
2	Hotel2	Mumbai	5
3	Hotel3	Hyderabad	4
4	Hotel4	Bengaluru	4
5	Hotel5	Chennai	5
6	Hotel6	Kolkata	4

Table: Bookings

B_ID	H_ID	Customer_Name	Check_In	Check_Out
1	1	Jiya	2024-12-03	2024-12-05
2	2	Priya	2024-12-01	2024-12-07
3	3	Alicia	2024-12-02	2024-12-06
4	4	Bhavik	2024-12-03	2024-12-08
5	5	Charu	2024-12-03	2024-12-09
6	6	Esha	2024-12-04	2024-12-06
7	4	Dia	2024-12-04	2024-12-08
8	1	Sonia	2024-12-02	2024-12-08

- I. To display a list of customer names who have Star_Rating equals to 5.
- II. To display the booking details for customers who have booked hotels in 'Mumbai', 'Chennai', or 'Kolkata'.
- III. To delete all bookings where the check-in date is after 2024-12-03.
- IV. A. To display the Cartesian Product of the two tables.

OR

- B. To display the customer's name along with their booked hotel's name.

- 35 MySQL database named MyDB has a product_inventory table in MySQL which contains the following attributes:

4

- Item_code: Item code (Integer)
- Product_name: Name of product (String)
- Quantity: Quantity of product (Integer)
- Cost: Cost of product (Integer)

Consider the following details to establish Python-MySQL connectivity:

- Username: admin
- Password: computer24
- Host: localhost

Write a Python program to change the Quantity of the product to 91 whose Item_code is 208 in the product_inventory table.

SECTION E

- 36 Ms. Neha, a librarian at a public library, needs to maintain records of books. Each record should include: Book_ID, Title, Author, and Price. 2+3

Write the Python functions to:

- I. Input book data and append it to a binary file named Books.dat.
- II. Update the price of all books written by "Ruskin Bond" to ₹500.

- 37 ABC Inc. is planning a new campus in Kolkatta while maintaining its headquarters in Bengaluru. The campus will have four buildings: HR, Finance, IT, and Logistics. As a network expert, you are tasked with proposing the best network solutions for their needs based on the following: 5

Distance between the buildings

From	To	Distance (in meters)
HR	Finance	50
HR	IT	175
HR	Logistics	90
Finance	IT	60
Finance	Logistics	70
IT	Logistics	60

Number of Computers in Each Block:

Block	Number of Computers
HR	60
Finance	40
IT	90
Logistics	35

- I. Suggest the best location for the server in the Kolkatta campus and explain your reasoning.
- II. Suggest the placement of the following devices:
 - a) Repeater
 - b) Switch
- III. Suggest and draw a cable layout of connections between the buildings inside the campus.
- IV. The organisation plans to provide a high-speed link with its head office using a wired connection. Which of the cables will be most suitable for this job?
- V. A. What is the use of VoIP?

OR

- B. Which type of network (PAN, LAN, MAN, or WAN) will be formed while connecting the Kolkatta campus to Bengaluru Headquarters?

08/01/2026

केंद्रीय विद्यालय संगठन, अहमदाबाद संभाग (SET-B)
KENDRIYA VIDYALAYA SANGATHAN, AHMEDABAD REGION
 द्वितीय प्री-बोर्ड परीक्षा - 2025-26
SECOND PRE-BOARD EXAMINATION- 2025-26

SUBJECT: POLITICAL SCIENCE (028)
CLASS: XII

Max. Marks: 80
TIME: 3 Hours

GENERAL INSTRUCTIONS:

1. The question paper consists of five sections (A, B, C, D and E) with 30 questions in total.
2. All questions are compulsory.
3. Question numbers 1-12 are multiple choice questions of one mark each.
4. Question numbers 13-18 are of 2 marks each. Answer to these questions should not exceed 50-60 words each.
5. Question numbers 19-23 are of 4 marks each. Answer to these questions should not exceed 100-120 words each.
There is an internal choice in two of the 4 marks questions.
6. Question 24-26 are passage, cartoon and map-based questions of 4 Marks each. Answer accordingly.
7. Question numbers 27-30 are of 6 marks each. Answer to these questions should not exceed 170-180 words each.
8. There is an internal choice in 6 marks questions.

Q.NO		MARKS
	SECTION- A (12 MARKS)	
1.	What is the significance of the SAARC organization in South Asia?	1
A	It promotes economic cooperation and regional integration among South Asian countries.	
B	It has successfully resolved all regional conflicts.	
C	It focuses solely on military alliances in the region.	
D	It is primarily concerned with environmental issues.	
2.	What is the full form of LTTE?	1
A	Liberated Tigers of Tamil Eelam	
B	Liberated Troops of Telugu Eelam	
C	Liberation Tigers of Tamil Eelam	
D	Liberation Troops of Tamil Eelam	

3.	In 2006, How many member states did the UN have?	1
A	200	
B	196	
C	192	
D	195	

Directions (Q No. 4 and 5)

In the questions given below there are two statements marked as Assertion (A) and Reason (R). Read these statements and Choose the correct option.

Codes

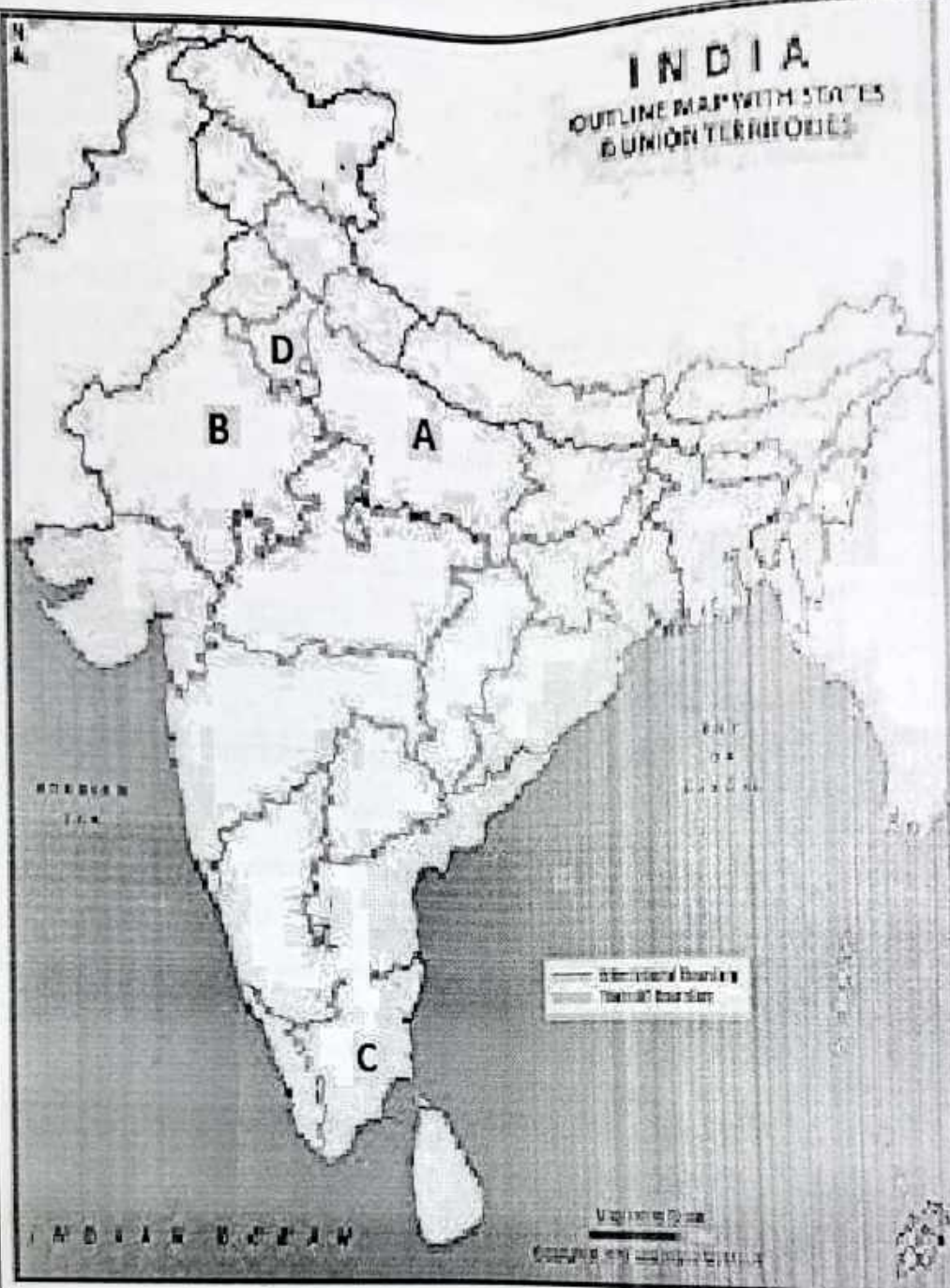
- Both A and R are true and R is the correct explanation of A.
- Both A and R are true but R is not the correct explanation of A.
- A is true but R is false.
- A is false but R is true.

4.	Assertion (A): The UN is not a great balance to the US. Reason(R): The UN can and has served to bring the US and the rest of the world into discussions over various issues	1
5	Assertion (A): Sustainable development is necessary for the survival of future generations. Reason (R): Sustainable development means using resources for present needs without compromising future needs.	1
6.	Which of the following statements about the environment are correct? (i) Environmental concerns are part of the global politics. (ii) A conference on the environment was held in Rio-de-Janeiro in 1992. (iii) The UN has assigned the environmental programmers to the UN Human Rights Commission. (iv) The Earth Summit was organized by the United Nations. Choose the correct option.	1
A	(i), (iii), (iv)	
B	(ii), (iii), (iv)	
C	(i), (ii), (iii)	
D	(i), (ii) and (iv)	
7.	Which of the following are the consequences of India's Partition in 1947? (i) Communal violence (ii) Lakhs of people had to migrate from one place to another (iii) Parliamentary system of governance. (iv) Reorganisation of State	1

A	(i) and (ii)	
B	(ii) and (iv)	
C	(i) and (iii)	
D	(iii) and (iv)	
8.	Name the original state from which Chhattisgarh was carved out.	1
A	Uttar Pradesh	
B	Madhya Pradesh	
C	Jharkhand	
D	Bihar	
9.	Which of the following statements about the Grand Alliance of 1971 is correct? The Grand Alliance _____	1
A	was formed by all non-Congress parties	
B	had a clean political and ideological programme	
C	was formed by Communist non-Congress parties	
D	was formed by non-Communist non-Congress parties	
10.	The term "Aya Ram, Gaya Ram" is associated with :	1
A	Green Revolution	
B	Decentralization	
C	Corruption	
D	Politics of Defection	
11.	Identify the Prime Minister of India from amongst the following who headed the first Coalition Government in India	1
A	Atal Bihari Vajpayee	
B	V.P. Singh	
C	H.D. Deve Gowda	
D	Morarji Desai	
12.	Which Political event in India marked a significant shift towards the "Growing Consensus" after 1990?	1
A	Implementation of reservation policies for marginalized communities	

B	Passage of the Right to Information Act	
C	Introduction of economic liberalization reforms	
D	Ratification of international human rights conventions	
SECTION - B (12 Marks)		
13.	What was the Marshall Plan? How did it pave the way for the formation of OEEC (Organisation of European Economic Cooperation)?	2
14.	Why were developing countries exempted from the requirement of the Kyoto Protocol?	2
15.	Identify the most important outcome of the Rio summit.	2
16.	Differentiate between the main objective of the First and the Second Five Year.	2
17.	List any two challenges faced by India during Lai Bahadur Shastri's Government.	2
18.	Describe any two major issues in the North Eastern States of India.	2
SECTION - C (20 MARKS)		
19.	Explain any four causes of ethnic conflict in Sri Lanka,	4
20.	What is meant by globalization? Explain any three cultural consequences of globalization. OR Explain any four factors responsible for the development of globalization.	4
21.	Describe briefly any four problems faced in the process of partition of India.	4
22.	Examine the conditions responsible for the growth of Naxalite movement in India. Suggest ways and means to crush it. OR Analyze the circumstances responsible for the declaration of a state of emergency in India on 25th June, 1975.	4
23.	Briefly describe the story of Sikkim from the time of India's MMJ independence to its merger with India.	4
SECTION - D (12 MARKS)		
24	Read the passage given below and answer the questions that follow: ASEAN was and still remains an economic association. While the ASEAN region as a whole is a much smaller economy compared to the US, the EU, and Japan, its economy is growing much faster than all these. This accounts for the growth in its influence both in the region and beyond. The objectives of the ASEAN economic community are to create a common market and production base within ASEAN states and to aid social and economic development in the region.	4

	ASEAN has focused on creating a Free Trade Area (FTA) for investment, labour and services. The US and China have already moved fast to negotiate FTAs with ASEAN.	
(i)	When was ASEAN established?	1
A	1965	
B	1967	
C	1962	
D	1971	
(ii)	ASEAN is principally a/an _____.	1
A	Economic organization	
B	Social organization	
C	Political organisation	
D	Cultural organisation	
(iii)	Mention the any two objectives of ASEAN Economic Community.	2
25.	In the given outline political map of India, four states have been marked as (A), (B), (C) and (D). Identify these on the basis of the information given below and write their correct names in your answer book along with their respective serial number of the information used and the concerned alphabets as per format that follows: (i) The State to which the former Congress President K Kamraj belonged (ii) The State from where the phrase 'Aya Ram Gaya Ram' originated (iii) The State to which former Prime Minister Lal Bahadur Shastri belonged (iv) The State where the Congress Party did not get majority in 1967 assembly election	4



Sr. Number of the information used	Alphabet concerned	Name of State
(i)		
(ii)		
(iii)		
(iv)		

26.	Study the Cartoon given below and answer the questions that follow: 	4
(i)	What does this cartoon depict?	
A	USA's influence on UN	
B	UN's influence on the world	
C	US Hegemony	
D	None of the above	
(ii)	What have been the reasons for immense influence of US on UN?	
A	USA's economic superiority	
B	UN's head quarter is in USA and USA's financial contribution to UN.	
C	USA's weapon capacity	
D	All of the above	
(iii)	Why this cartoon is not relevant today?	
A	Because all the countries have their powerful organizations.	
B	UN has become more powerful.	
C	Iraq and Afghanistan war has affected US economy.	
D	US is now not as powerful as it used to, as the new centres of power emerged.	
(iv)	How has US dominated the world?	
A	By its trade and commerce	

B	By its technology	
C	By dominating military, economy and cultural aspects of the other nations.	
D	By its advancement in space research.	
SECTION - E (24 MARKS)		
27	Examine any six characteristics of the Soviet system during 1971-1991. OR Examine any six factors that helped Soviet Union in becoming a superpower on the globe after the Second World War.	6
28	What is meant by global poverty? Suggest any two ways to reduce disparity between the poor and the rich at the global level. OR What could be the three broad meanings of Terrorism? What stand does India have on the issue of Terrorism?	6
29	India's foreign policy was built around the principles of peace and co-operation. But India fought three wars in a space of 10 years between 1962 and 1971. Would you say that this was a failure of the foreign policy? Or would you say that this was a result of international situation? Give reasons to support your answer. OR Give any three suitable arguments in favour of "India being a staunch supporter of the decolonisation process and in firm opposition to racism".	6
30	Describe the major developments that have taken place in Indian Politics during the NDA III & IV. OR Which three major developments took place in Indian politics during the last decade of the 20th century? Describe.	6

08/01/2026

केंद्रीय विद्यालय संगठन, अहमदाबाद संभाग

KENDRIYA VIDYALAYA SANGATHAN, AHMEDABAD REGION

द्वितीय प्री-बोर्ड परीक्षा - 2025-26

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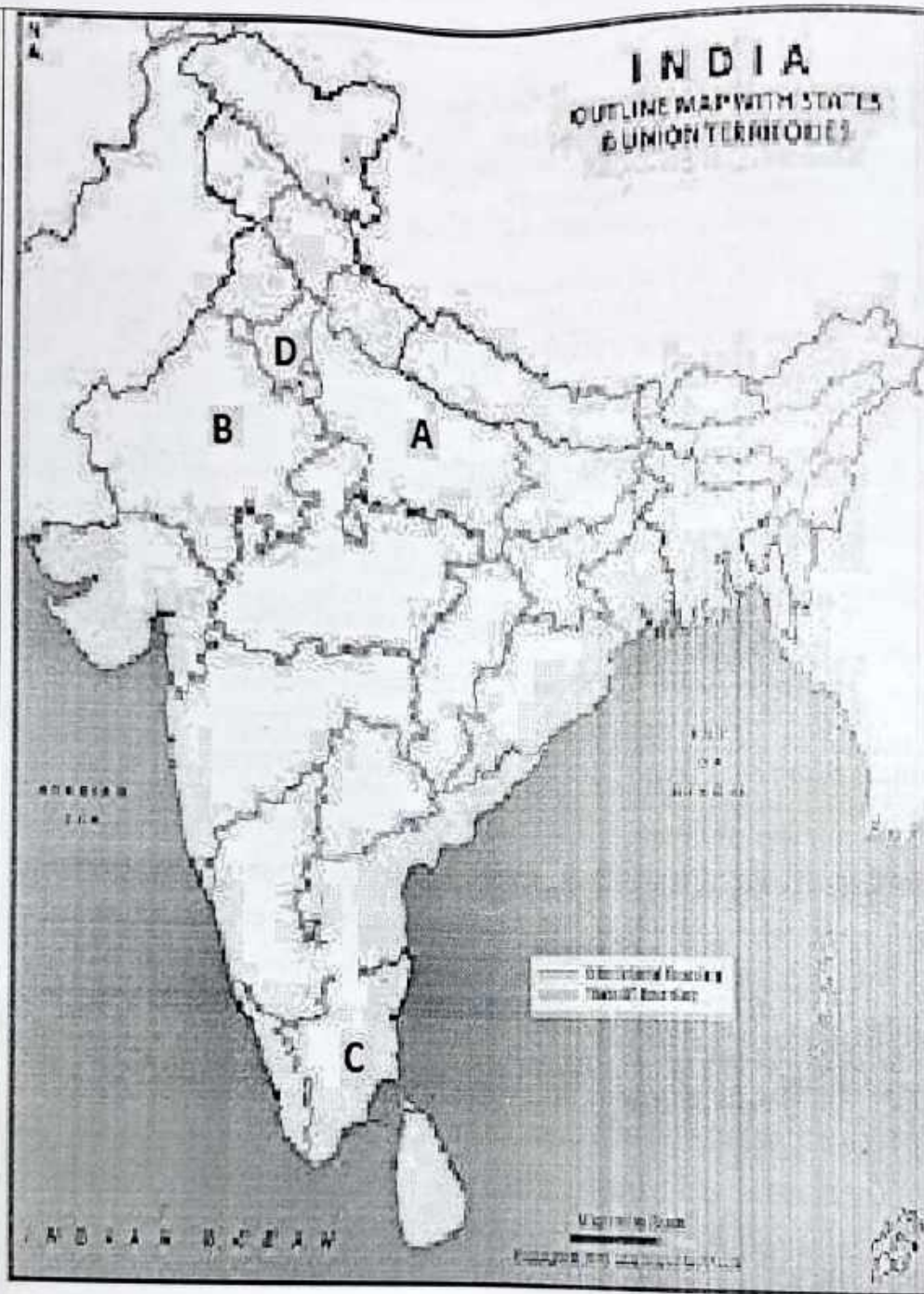
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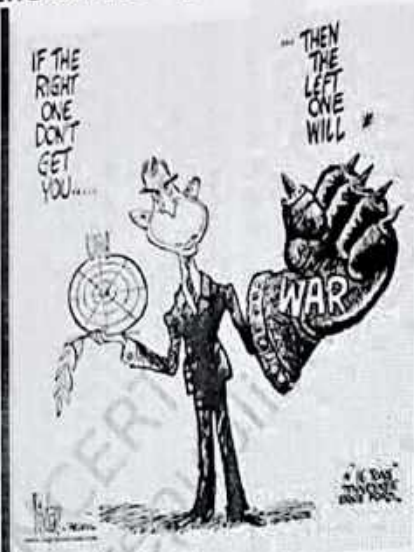
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16.	Differentiate between the main objective of the First and the Second Five Year.	2
17.	List any two challenges faced by India during Lai Bahadur Shastri's Government.	2
18.	Describe any two major issues in the North Eastern States of India.	2
SECTION - C (20 MARKS)		
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A	UN's influence on the world	
B	USA's influence on UN	
C	US Hegemony	
D	None of the above	
(ii)	What have been the reasons for immense influence of US on UN?	
A	USA's economic superiority	
B	USA's weapon capacity	
C	UN's head quarter is in USA and USA's financial contribution to UN.	
D	All of the above	
(iii)	Why this cartoon is not relevant today?	
A	Because all the countries have their powerful organizations.	
B	US is now not as powerful as it used to, as the new centres of power emerged.	
C	Iraq and Afghanistan war has affected US economy.	
D	UN has become more powerful.	
(iv)	How has US dominated the world?	
A	By its trade and commerce	

B	By its technology	
C	By its advancement in space research.	
D	By dominating military, economy and cultural aspects of the other nations.	
SECTION - E (24 MARKS)		
27	Examine any six characteristics of the Soviet system during 1971-1991. OR Examine any six factors that helped Soviet Union in becoming a superpower on the globe after the Second World War.	6
28	What is meant by global poverty? Suggest any two ways to reduce disparity between the poor and the rich at the global level. OR What could be the three broad meanings of Terrorism? What stand does India have on the issue of Terrorism?	6
29	India's foreign policy was built around the principles of peace and co-operation. But India fought three wars in a space of 10 years between 1962 and 1971. Would you say that this was a failure of the foreign policy? Or would you say that this was a result of international situation? Give reasons to support your answer. OR Give any three suitable arguments in favour of "India being a staunch supporter of the decolonisation process and in firm opposition to racism".	6
30	Describe the major developments that have taken place in Indian Politics during the NDA III & IV. OR Which three major developments took place in Indian politics during the last decade of the 20th century? Describe.	6

08/11/2020

केंद्रीय विद्यालय संगठन, अहमदाबाद संभाग
Kendriya Vidyalaya Sangathan, Ahmedabad Region
कक्षा बारहवीं प्री-बोर्ड II परीक्षा 2025-26
Pre-Board II Examination 2025-26 for Class XII
SUBJECT: ECONOMICS (030)

(SET- A)

M.M. – 80 MARKS

TIME: 03:00 HOURS

GENERAL INSTRUCTIONS:

1. This question paper contains two sections:
Section A- Macro Economics
Section B- Indian Economic Development
2. This paper contains 20 multiple choice questions type questions of 1 mark each.
3. This paper contains 4 Short Answer Questions type questions of 3 marks each to be answered in 60 to 80 words.
4. This paper contains 6 Short Answer Questions type questions of 4 marks each to be answered in 80 to 100 words.
5. This paper contains 4 Long Answer Questions type questions of 6 marks each to be answered in 100 to 150 words.

SECTION A: MACRO ECONOMICS

- 1 From the given alternatives choose the correct one: 1
Assertion(A) At the break-even level of income, the value of Average Propensity to Consume is Zero.
Reason(R) Sum of Average Propensity to Consume and Average Propensity to Save is always equal to one.
Alternatives:
(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is true but Reason (R) is false.
(D) Assertion (A) is false but Reason (R) is true.
- 2 State Bank of India receives a deposit of Rs 100000 and the reserve requirement is 10%. If the bank decides to hold reserves equal to 25% of the deposit instead of the required amount, how much excess reserve does the bank hold? 1
(a) 20000 (b) 10000 (c) 15000 (d) 25000
- 3 What is the value of Investment multiplier, when $C = -100 + 0.8Y$ 1
(a) 3 (b) 8 (c) 5 (d) 2
- 4 A Decrease in the value of US Dollar in terms of Indian Rupee 1
(a) Increase in foreign exchange rate that result in decreased export
(b) Decrease in foreign exchange rate that result in Increased export
(c) Increase in foreign exchange rate that results in decreased import
(d) Decrease in foreign exchange rate that result in Increased import
- 5 Ms Shweta, a teacher, was explaining in her class about various types of deposits with the commercial banks, she quoted that – 1
"These deposits form a part of M1 measure of money supply and are payable on demand by the commercial bank;
Identify the type of deposits she was explaining about and choose the correct alternative

(1) Demand Deposits (2) Time Deposits (3) Post Office Deposits Alternative:
 (a) Only (i) (b) Only (ii) (c) (i) and (ii) (d) (i) (ii) and (iii)

- 6 In order to tackle the problem of rising general price level in an economy, government may come up with a surplus budget to achieve the budget objective of 1

- (i) Reallocation of resources
 (ii) price stability
 (iii) redistribution of income

Alternative:

- (a) Only (i) (b) Only (ii)
 (c) Only (iii) (d) (i) and (iii)

- 7 _____ formulates the Fiscal Policy in the economy: - 1

- (a) International Monetary Fund (b) Central Bank
 (c) Central Government (d) Commercial Bank

- 8 Statement 1: Mixed income of self-employed is the income of own account. 1
 Statement 2: Mixed income of self-employed is not included in the estimation of National income

In the light of the given alternatives, choose the correct alternative from the following:

- (a) Statement 1 is true and statement 2 is false.
 (b) Statement 1 is false and statement 2 is true
 (c) Both statements 1 and 2 are true
 (d) Both statements 1 and 2 are false.

- 9 Which of the following does not explain the concept of depreciation? - 1

- (a) An annual allowance for wear and tear of a capital goods.
 (b) Cost of the capital good (minus scrap value) divided by number of years of its useful life
 (c) Unexpected or sudden destruction or disuse of capital as can happen with accidents, natural calamities etc.
 (d) Maintenance and replacement cost of existing capital goods etc.

- 10 If the borrowing, interest payment and revenue expenditure are 3000, 1000 and 4000 respectively. What is the fiscal deficit: - 1

- (a) 8000 (b) 5000 (c) 3000 (d) 2000

- 11 Many goods and services which may contribute to welfare, but are not included in estimating Gross Domestic Product. "Do you agree with the given statement? Give valid reason in support of your answer 3

OR

Using a suitable numerical example, distinguish between Real Gross Domestic Product and Nominal Gross Domestic Product.

- 12 Elaborate the 'Banker's Bank and 'Supervisor function performed by the Reserve Bank of India. 3
 13 What are the fiscal measures to correct excess and deficit demand? 4
 14 Giving the following data estimate the values of (i) Revenue Deficit (ii) Fiscal Deficit 2+2

S.NO.	PARTICULAR	Rs Crore
1	TAX REVENUE	1000
2	NOT-TAX REVENUE	150
3	NET BORROWINGS BY GOVERNMENT	780

4	DISINVESTMENT PROCEEDS	50
5	REVENUE EXPENDITURE	1500
6	CAPITAL EXPENDITURE	480

OR

Classify the following statements into revenue receipts and capital receipts give valid reasons in support of your answer

1. Sale of shares of a public sector undertaking to a private company 2
 2. Dividend paid to the government by the state bank of India 2
- 15 "Under the flexible exchange rate system, the Central Bank does not intervene in the foreign exchange market. Justify the statement, giving valid arguments. 4

OR

Explain the impact of home currency depreciation on the exports of a nation.

- 16 How will you treat the following while estimating the National Income of India? Give Reason.

(i) Rent earned by an Indian resident from his building in Japan.

(ii) Profits earned by a branch of a British Bank in India.

(iii) Calculate the Operating Surplus

S.NO.	PARTICULAR	Rs Crore
1	COMPENSATION OF EMPLOYEE	110
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3	DEPRICIATION	50
4	NET FACTOR INCOME FROM REST OF THE WORLD	155
5	INCOME FROM ENTREPRENEURSHIP AND PROPERTY FROM REST OF THE WORLD	75
6	GROSS DOMESTIC PRODUCT AT MARKET PRICE	1050
7	MIXED INCOME OF SELF-EMPLOYED	500

OR

Calculate the Closing Stock, National Income and Government Final Consumption Expenditure: -

S.NO.	PARTICULAR	Rs in crore
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3	NET FACTOR INCOME TO ABORAD	40
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6	OPENING STOCK	100
7	GROSS DOMESTIC CAPITAL FORMATION	2800
8	CONSUMPTION OF FIXED CAPITAL	550
9	NET EXPORT	700

- 17 Describe the situation of deficit aggregate demand at full employment level. 6
Explain how monetary policy measures can control this situation.

SECTION B: INDIAN ECONOMIC DEVELOPMENT

- 18 From the given alternatives choose the correct one: 1

Assertion(A) Human Capital is not traded in the market however its services are traded.

Reason(R) Human capital is intangible in nature.

Alternatives:

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct

explanation of Assertion (A).
 (B) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).
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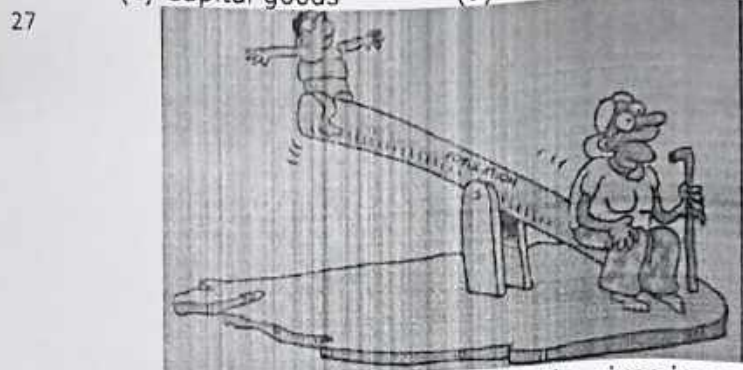
- 19 The government of India enacted the right to Education Act to make free education a fundamental right of all children in the age group
 (a) 6-14 (b) 6-12 (c) 5-18 (d) 6-19 1
- 20 _____ is a process, which includes all the activities from sowing till sale of the final produce in the market. 1
 (a) Rural Development (b) Self Help Groups
 (c) Organic Farming (d) Agricultural Marketing
- 21 India entered the _____ stage of Demographic Transition after the year 1921 1
 (a) Second (b) Fourth (c) First (d) Fifth
- 22 Statement 1: Dual price policy in China was an attempt to encourage industrialisation 1
 Statement 2: Special Economic Zones has been an attempt to attract foreign capital in the country
 (a) Both the statement are true
 (b) Both the statement are false
 (c) Statement 1 is true and statement 2 is false
 (d) Statement 1 is false and statement 2 is true
- 23 Choose the correct alternative showing chronological order of the following events. 1
 1. One child policy 2. Economic reforms in Pakistan
 3. New economic policy in India 4. Commune system in agriculture in China
 Alternatives -
 (A) 2, 4, 3, 1 (B) 4, 2, 1, 3 (C) 3, 4, 1, 2 (D) 4, 1, 2, 3
- 24 **Read the following statements - Assertion (A) and Reason (R):** 1
Assertion (A): In India, financial sector is regulated and controlled by the Reserve Bank of India.
Reason (R): Prior to liberalization, tax structure was quite complex and tax rates were quite high.
From the given alternatives choose the correct one:
 Alternatives:
 (A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
 (B) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).
 (C) Assertion (A) is true but Reason (R) is false.
 (D) Assertion (A) is false but Reason (R) is true.

- 25 From the set of statements given in Column I and Column II, choose the correct pair of statements:

A	UTSOURCING	I	AN IMPORTANT OUTCOME OF THE PROCESS OF LIBERALISATION
B	FOREIGN EXCHANGE REFORMS	II	INITIATED WITH THE DEVALUATION OF THE INDIAN RUPEE AGAINST FOREIGN CURRENCY
C	GST	III	A DIRECT TAX
D	CONTRACTION OF PUBLIC SECTOR	IV	A MEASURE OF PRIVATISATION

(a) A-(I) (b) B-(II) (b) C-(III) (b) D-(IV)

- 26 On the eve of independence, India was net exporter of 1
 (a) Primary Product (b) Industrial Products
 (c) Capital goods (d) All of these



Identify the issue depicted in the given image.

- (a) Demographic dividend (b) Exponential population growth
 (c) Aging of population (d) None of these
- 28 "Import substitution is a good way of protecting the domestic industry." Justify the statement. 3

OR

- While subsidies encourage farmers to use new technology, they are a huge burden on government finances. Discuss the usefulness of subsidies in light of this fact. 3
- 29 What do you mean by Organic Farming? Write its benefits. 3
- 30 "Recently the Government of India has taken numerous steps towards increasing the farmer's income through agricultural diversification." 4
 In light of the above statement, explain the need and advantage of diversification in agriculture.

OR

- "The Prime Minister urged to increase the rural income by increasing non-farm activities.: Explain how non-farm activities can lead to rise in income of people in rural sector?
- 31 "If the rate of resource extraction exceeds the rate of regeneration, it leads to reduction in carrying capacity of the environment. "Discuss the rationale of the given statement with valid reason. 4

OR

- 'Pesticides are chemical compounds designed to kill pests. Many pesticides can also pose health risks to people even if exposed to nominal quantities.'
 In the light of the above statement, suggest any two traditional methods for replacement of the chemical pesticides.

32

COUNTRY	1980-907	2015-17
INDIA	5.7	7.3
CHINA	10.3	6.8

- On the basis of the data given in above table:
 A analyse the GDP indicator with respect to India and China 2
 B. State the reason behind GDP growth of India during the 2015-17. 2
- 33 "Infrastructure and other resources developed by British government during colonial period their own benefit but it will be positive impact on the Indian economy." 6
 Justify the statement.

OR

"Five Year Plan is vital instrument for achieve specific objectives of economic development in India after the independence." Elaborate the statement with objectives of Five-Year Plan.

34 The environment performs several crucial functions that support life on Earth. These functions include:

- Provision of Essential Resources: The environment provides us with essential resources such as air, water, food, and minerals that are necessary for human survival.
- Regulation of Climate: The environment regulates the Earth's climate, which is essential for maintaining life-supporting conditions.
- Supports Biodiversity: The environment supports a wide range of plant and animal species, maintaining ecosystem balance and promoting biodiversity.
- Waste Management: The environment helps to break down and recycle organic waste, reducing the impact of pollution.

Challenges Facing the Environment Despite its importance, the environment faces numerous challenges, including:

- Climate Change: Global warming and climate change are significant threats to the environment, causing rising sea levels, more frequent natural disasters, and altered ecosystems.
- Pollution: The release of pollutants into the air, water, and soil harms the environment and human health.
- Deforestation and Land Degradation: The clearance of forests and degradation of land reduce biodiversity, increase greenhouse gas emissions, and disrupt ecosystems.
- Overexploitation of Resources: The overuse of natural resources, such as water and minerals, can lead to their depletion and harm the environment.

Importance of Environmental Conservation Given the importance of the environment and the challenges it faces, conservation efforts are essential to protect and sustain the environment. This can be achieved through:

- Sustainable Practices: Adopting sustainable practices, such as reducing energy consumption and using renewable energy sources, can help reduce the impact of human activities on the environment.
- Conservation of Natural Resources: Conserving natural resources, such as water and forests, is crucial for maintaining ecosystem balance and promoting biodiversity.
- Reducing Pollution: Implementing policies and practices to reduce pollution can help protect the environment and human health.
- Environmental Education and Awareness: Educating people about the importance of environmental conservation and promoting awareness about environmental issues can inspire individuals to take action to protect the environment.

(A). "The environment performs various activities which support and affect the life. In this context explain the various function of the environment.

(B). "Environment is important element of the human being, despite of the importance of environment facing various challenges." Elaborate the statement with challenges facing to maintain the environment.

08/01/2026

केंद्रीय विद्यालय संगठन, अहमदाबाद संभाग
Kendriya Vidyalaya Sangathan, Ahmedabad Region

(SET- B)

कक्षा बारहवीं प्री-बोर्ड II परीक्षा 2025-26

Pre-Board II Examination 2025-26 for Class XII

SUBJECT: ECONOMICS (030)

M.M. - 80 MARKS

TIME: 03:00 HOURS

GENERAL INSTRUCTIONS:

1. This question paper contains two sections:
Section A- Macro Economics
Section B- Indian Economic Development
2. This paper contains 20 multiple choice questions type questions of 1 mark each.
3. This paper contains 4 Short Answer Questions type questions of 3 marks each to be answered in 60 to 80 words.
4. This paper contains 6 Short Answer Questions type questions of 4 marks each to be answered in 80 to 100 words.
5. This paper contains 4 Long Answer Questions type questions of 6 marks each to be answered in 100 to 150 words.

SECTION A: MACRO ECONOMICS

1. In order to tackle the problem of rising general price level in an economy, government may come up with a surplus budget to achieve the budget objective of _____
(i) Reallocation of resources
(ii) price stability
(iii) redistribution of income
Alternative:
(a) Only (i) (b) Only (ii) (c) Only (iii) (d) (i) and (iii)
2. _____ formulates the Fiscal Policy in the economy: -
(a) International Monetary Fund (b) Central Bank
(c) Central Government (d) Commercial Bank
3. Statement 1: Mixed income of self-employed is the income of own account.
Statement 2: Mixed income of self-employed is not included in the estimation of National income
In the light of the given alternatives, choose the correct alternative from the following:
(a) Statement 1 is true and statement 2 is false.
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(c) Both statements 1 and 2 are true
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- 4 Which of the following does not explain the concept of depreciation? -
 (a) An annual allowance for wear and tear of a capital goods.
 (b) Cost of the capital good (minus scrap value) divided by number of years of its useful life
 (c) Unexpected or sudden destruction or disuse of capital as can happen with accidents, natural calamities etc.
 (d) Maintenance and replacement cost of existing capital goods etc.
- 5 If the borrowing, interest payment and revenue expenditure are 5000, 1000 and 4000 respectively. What is the fiscal deficit: -
 (a) 8000 (b) 3000 (c) 5000 (d) 2000
- 6 **From the given alternatives choose the correct one:**
 Assertion(A) At the break-even level of income, the value of Average Propensity to Consume is Zero.
 Reason(R) Sum of Average Propensity to Consume and Average Propensity to Save is always equal to one.
 Alternatives:
 (A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
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- 7 State Bank of India receives a deposit of Rs 100000 and the reserve requirement is 10%. If the bank decides to hold reserves equal to 20% of the deposit instead of the required amount, how much excess reserve does the bank hold?
 (a) 20000 (b) 10000 (c) 15000 (d) 25000
- 8 What is the value of Investment multiplier, when $C = -100 + 0.5Y$
 (a) 3 (b) 8 (c) 2 (d) 5
- 9 A Decrease in the value of US Dollar in terms of Indian Rupee
 (a) Increase in foreign exchange rate that result in decreased export
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- 10 Ms Shweta, a teacher, was explaining in her class about various types of deposits with the commercial banks, she quoted that -
 "These deposits form a part of M1 measure of money supply and are payable on demand by the commercial bank:
 Identify the type of deposits she was explaining about and choose the correct alternative
 (1) Demand Deposits (2) Time Deposits (3) Post Office Deposits
 Alternative:
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 (c) (i) and (ii) (d) (i) (ii) and (iii)

- 11 Many goods and services which may contribute to welfare, but are not included in estimating Gross Domestic Product. "Do you agree with the given statement? Give valid reason in support of your answer 3

OR

Using a suitable numerical example, distinguish between Real Gross Domestic Product and Nominal Gross Domestic Product.

- 12 Elaborate the 'Banker's Bank and Supervisor function performed by the Reserve Bank of India. 3

- 13 What are the fiscal measures to correct excess and deficit demand? 4

- 14 Giving the following data estimate the values of (i) Revenue Deficit (ii) Fiscal Deficit 2+2

S.NO.	PARTICULAR	Rs Crore
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3	NET BORROWINGS BY GOVERNMENT	780
4	DISINVESTMENT PROCEEDS	50
5	REVENUE EXPENDITURE	1500
6	CAPITAL EXPENDITURE	480

OR

Classify the following statements into revenue receipts and capital receipts give valid reasons in support of your answer 2

1. Sale of shares of a public sector undertaking to a private company 2

2. Dividend paid to the government by the state bank of India 2

- 15 "Under the flexible exchange rate system, the Central Bank does not intervene in the foreign exchange market. Justify the statement, giving valid arguments. 4

OR

- 16 Explain the impact of home currency depreciation on the exports of a nation. How will you treat the following while estimating the National Income of India? Give Reason.

(i) Rent earned by an Indian resident from his building in Japan. 2

(ii) Profits earned by a branch of a British Bank in India. 2

(iii) Calculate the Operating Surplus 2

S.NO.	PARTICULAR	Rs Crore
1	COMPENSATION OF EMPLOYEE	110
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Calculate the Closing Stock, National Income and Government Final Consumption Expenditure: -

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7	GROSS DOMESTIC CAPITAL FORMATION	2800
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9	NET EXPORT	700

- 17 Describe the situation of deficit aggregate demand at full employment level. Explain how monetary policy measures can control this situation. 6

SECTION B: INDIAN ECONOMIC DEVELOPMENT

- 18 Choose the correct alternative showing chronological order of the following events. 1

- One child policy
- Economic reforms in Pakistan
- New economic policy in India
- Commune system in agriculture in China

Alternatives -

- (A) 2, 4, 3, 1 (B) 4, 2, 1, 3
(C) 3, 4, 1, 2 (D) 4, 1, 2, 3

- 19 Read the following statements - Assertion (A) and Reason (R): 1

Assertion (A): In India, financial sector is regulated and controlled by the Reserve Bank of India.

Reason (R): Prior to liberalization, tax structure was quite complex and tax rates were quite high.

From the given alternatives choose the correct one:

Alternatives:

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(D) Assertion (A) is false but Reason (R) is true.

20

From the set of statements given in Column I and Column II, choose the correct pair of statements:

1

A	OUTSOURCING	I	AN IMPORTANT OUTCOME OF THE PROCESS OF LIBERALISATION
B	FOREIGN EXCHANGE REFORMS	II	INITIATED WITH THE DEVALUATION OF THE INDIAN RUPEE AGAINST FOREIGN CURRENCY
C	GST	III	A DIRECT TAX
D	CONTRACTION OF PUBLIC SECTOR	IV	A MEASURE OF PRIVATISATION

- (a) A-(I) (b) B-(II) (b) C-(III) (b) D-(IV)

21

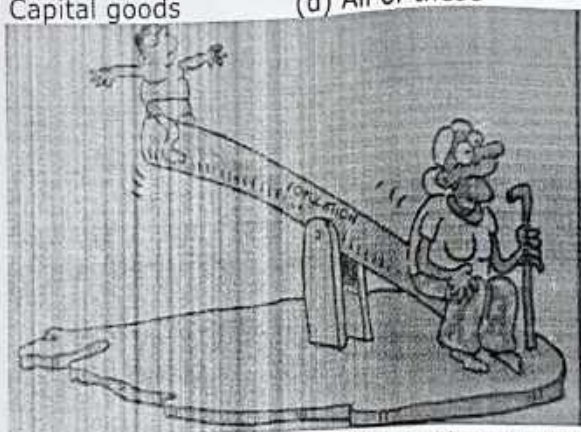
On the eve of independence, India was net exporter of

1

- (a) Primary Product (b) Industrial Products
(c) Capital goods (d) All of these

22

1



Identify the issue depicted in the given image.

- (a) Demographic dividend (b) Exponential population growth
(c) Aging of population (d) None of these

From the given alternatives choose the correct one:

1

Assertion(A) Human Capital is not traded in the market however its services are traded.

Reason(R) Human capital is intangible in nature.

Alternatives:

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The government of India enacted the right to Education Act to make free education a fundamental right of all children in the age group 6-14 (b) 6-12 (c) 5-18 (d) 6-19

1

25 _____ is a process, which includes all the activities from sowing till sale of the final produce in the market. 1

- (a) Rural Development (b) Self Help Groups
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26 India entered the _____ stage of Demographic Transition after the year 1921 1

27 (a) Second (b) Fourth (c) First (d) Fifth
Statement 1: Dual price policy in China was an attempt to encourage industrialisation 1

Statement 2: Special Economic Zones has been an attempt to attract foreign capital in the country

Alternatives:

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28 "Import substitution is a good way of protecting the domestic industry." Justify the statement. 3

OR

While subsidies encourage farmers to use new technology, they are a huge burden on government finances. Discuss the usefulness of subsidies in light of this fact.

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'Pesticides are chemical compounds designed to kill pests. Many pesticides can also pose health risks to people even if exposed to nominal quantities.'

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COUNTRY	1980-907	2015-17
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On the basis of the data given in above table:

A. Analyse the GDP indicator with respect to India and China 2

B. State the reason behind GDP growth of India during the 2015-17. 2

33

"Infrastructure and other resources developed by British government during colonial period their own benefit but it will be positive impact on the Indian economy." Justify the statement. 6

OR

"Five Year Plan is vital instrument for achieve specific objectives of economic development in India after the independence." Elaborate the statement with objectives of Five-Year Plan.

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The environment performs several crucial functions that support life on Earth. These functions include:

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- Deforestation and Land Degradation: The clearance of forests and degradation of land reduce biodiversity, increase greenhouse gas emissions, and disrupt ecosystems.

- Overexploitation of Resources: The overuse of natural resources, such as water and minerals, can lead to their depletion and harm the environment.

Importance of Environmental Conservation Given the importance of the environment and the challenges it faces, conservation efforts are essential to protect and sustain the environment. This can be achieved through:

- Sustainable Practices: Adopting sustainable practices, such as reducing energy consumption and using renewable energy sources, can help reduce the impact of human activities on the environment.
- Conservation of Natural Resources: Conserving natural resources, such as water and forests, is crucial for maintaining ecosystem balance and promoting biodiversity.
- Reducing Pollution: Implementing policies and practices to reduce pollution can help protect the environment and human health.
- Environmental Education and Awareness: Educating people about the importance of environmental conservation and promoting awareness about environmental issues can inspire individuals to take action to protect the environment.

(A). "The environment performs various activities which support and affect the life." In this context explain the various function of the environment. 3

(B). "Environment is important element of the human being, despite of the importance of environment facing various challenges." Elaborate the statement with challenges facing to maintain the environment. 3

08/07/2020

केंद्रीय विद्यालय संगठन, अहमदाबाद संभाग

SET - A

KENDRIYA VIDYALAYA SANGATHAN, AHMEDABAD REGION

कक्षा बारहवीं प्री बोर्ड II परीक्षा (2025-26)

PRE-BOARD II Examination for Class XII (2025-26)

Subject: Biology (044)

M.M.-70

Time: 3 Hours

General Instructions:

(i) All questions are compulsory.

(ii) The question paper has five sections and 33 questions.

(iii) Section-A has 16 questions of 1 mark each; Section-B has 5 questions of 2 marks each; Section-C has 7 questions of 3 marks each; Section-D has 2 case-based questions of 4 marks each; and Section-E has 3 questions of 5 marks each.

(iv) There is no overall choice. Answer all 33 questions. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

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SECTION - A

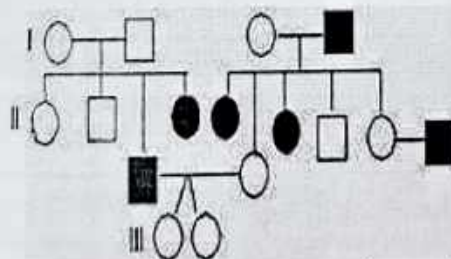
Q.1 Important RNA processing events lead to specialized end sequences in most human mRNAs: 1

- (i) at the 5' end, and
(ii) at the 3' end.

(iii) At the 5' end the most distinctive specialized end nucleotide is added,
(iv) sequence of about 200 is added to the 3' end.

- A. (i) Initiator codon (ii) Promotor (iii) Terminator codon (iv) Release factors
B. (i). Promotor (ii) Elongation (iii) Regulation (iv) Termination.
C. (i) Capping (ii) Polyadenylation (iii) mGppp (iv) Poly(A).
D. (i) Repressor (ii) Co repressor (iii) Operon (iv) Release factors

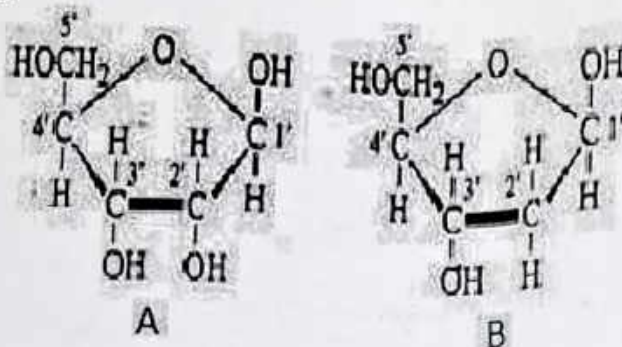
Q.2



What is the pattern of inheritance in the above pedigree chart?

- A. Autosomal dominant
B. Autosomal recessive
C. Sex -linked dominant
D. Sex -linked recessive

- Q.3 Observe structures A and B given below. Which of the following statements are correct? 1



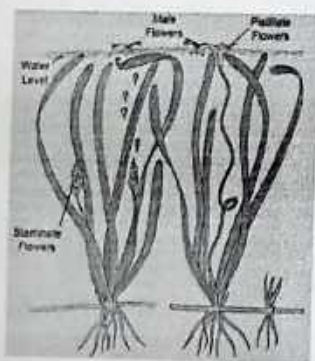
- A. A is having 2'-OH group which makes it less reactive and structurally stable, whereas B is having 2'-H group which makes it more reactive and unstable.
 B. A is having 2'-OH group which makes it more reactive and structurally unstable, whereas B is having 2'-H group which makes it less reactive and structurally stable.
 C. A and B both have -OH groups which make it more reactive and structurally stable.
 D. A and B both are having -OH groups which make it less reactive and structurally stable

- Q.4 A couple has two daughters. What is the probability that the third child will also be a female? 1
 A. 25% B. 50% C. 75% D. 100%

- Q.5 Penetration of the sperm in the ovum is followed by 1
 A. formation of first polar body. B. completion of meiosis II.
 C. first meiosis. D. dissolution of zona pellucida.

- Q.6 The correct sequence of hormone secretion from beginning of menstruation is 1
 A. FSH, progesterone, estrogen. B. estrogen, FSH, progesterone.
 C. FSH, estrogen, progesterone. D. estrogen, progesterone, FSH.

- Q.7 In the dioecious aquatic plant shown, identify the characteristics of the male flowers that reach the female flowers for pollination: 1



	Size of the flower	Colour of flower	Characteristic feature of pollengrain
A	small	brightly coloured	Light weight and non-sticky
B	large	colourless	large and sticky
C	small	white	small, covered with mucilage
D	large	colourless	non sticky

- Q.8 During parturition, a pregnant woman is having prolonged labour pains and child birth has to be fastened. It is advisable to administer a hormone that can 1
 A. increase the metabolic rate. B. release glucose in the blood.
 C. stimulate the ovary. D. activate smooth muscles.

- Q.9 A female undergoing IVF treatment has blocked fallopian tubes. The technique by which the embryo with more than 8 blastomeres will be transferred into the female for further development is 1
A. ZIFT B. GIFT C. IUT D. AI
- Q.10 What contributed to Mendel's success? 1
I. Selection of pureline pea varieties.
II. Knowledge of history.
III. Selecting one character at a time.
IV. Statistical analysis and mathematical logic.
Choose the correct option.
(a) I, II, III and IV (b) II and III
(c) I, III and IV (d) II, III and IV
- Q.11 To produce 400 seeds, the number of meiotic divisions required will be 1
A. 400 B. 200 C. 500 D. 800
- Q.12 Genotypic ratio of 1:2:1 is obtained in a cross between 1
A. AB X AB B. Ab X Ab C. Ab X ab D. ab X ab

Question No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

- A. Both A and R are true and R is the correct explanation of A**
B. Both A and R are true and R is not the correct explanation of A
C. A is true but R is false
D. A is False but R is true

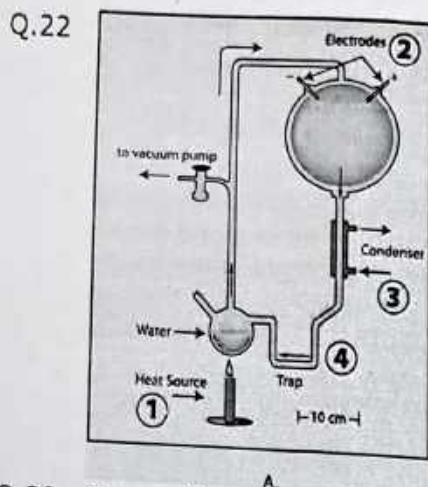
- Q.13 Assertion: The variation in Rauwolfia growing in different Himalayan ranges might be in terms of the potency and concentration of the active chemical (reserpine) that the plant produces. 1
Reason: A single species might show high diversity at the genetic level over its distributional range.
- Q.14 Assertion (A): Restriction endonucleases are also called 'molecular scissors'. 1
Reason (R): When fragments generated by restriction endonucleases are mixed, they join together due to their sticky ends
- Q.15 Assertion (A): A person should be considered reproductively healthy, if he has healthy reproductive organs, but is emotionally imbalanced. 1
Reason (R): It is significant to maintain reproductive health of people and society.
- Q.16 Assertion: Biopiracy is the practice of commercially exploiting naturally occurring biochemical or genetic material, especially by obtaining patents that restrict its future use, while failing to pay fair compensation to the community from which it originates. 1
Reason: US patented turmeric and neem which is a case of biopiracy.

SECTION -B

- Q.17 Draw a neat labelled diagram of a nucleosome. 2
- Q.18 If a given segment of double-stranded DNA has A+C = 60% & guanine is 20%, calculate the % of Thymine in the DNA. 2

- Q.19 How do the following help in cancer treatment? 2
 i) Alpha interferon ii) Radiotherapy
- Q.20 Mention the characteristics of a stable community. 2
- Q.21 Why is proinsulin so called? How is insulin different from it? 2

SECTION -C



- a.) State the hypothesis which S.L. Miller tried to prove in the laboratory with the help of the set up given above. 3
- b.) Name the organic compound observed by him in the liquid water after running the above experiment.
- c.) A scientist simulated a similar set up and added CH_4 , NH_3 and water vapour at 800°C . Which important component is missing in his experiment?

- Q.23 Some allergens trigger sneezing and wheezing in human beings. What causes this type of response by the body? 3

OR

A boy of ten years had chicken-pox. He is not expected to have the same disease for the rest of his life. Mention how it is possible.

- Q.24 Differentiate between spermatogenesis and oogenesis, with reference to the following aspects: 3
 (a) Formation and multiplication of oogonial and spermatogonial cells.
 (b) Number of gametes produced from one gamete mother cell.
 (c) Completion of the processes.

- Q.25 Give reasons for the following: 3
 a) Larger holes are observed in Swiss cheese.
 b) Alcoholic content in whisky is more than in beer, although both are made using malted barley and yeast.
 c) Nucleo-polyhedro virus can be used effectively in ecological fragile areas.

- Q.26 When a garden Pea plant with green pods was cross pollinated with another Pea plant with yellow pods, 50% of the progeny bear green pods. 3
 i) Work out the cross to illustrate this.
 ii) What do you refer to this type of cross? Why is such a cross done?

- Q.27 What is genetic engineering? List the steps involved in rDNA technology? 3

- Q.28 Explain Verhulst-Pearl Logistic Growth of a population. 3

SECTION -D

- Q.29 Sewage or municipal waste contains human excreta and other organic wastes. It also contains a number of pathogenic microbes, so should not be passed into rivers, streams and other water bodies. It is made less polluting by passing it through sewage treatment plants (STPs). 4

- (a) BOD of two samples of water A and B were 120 mg/L and 400 mg/L respectively. Which sample is more polluted?
 (b) Describe the functions of activated sludge in a sewage treatment plant.
 (c) Why is sewage water treatment essential?

OR

sludge can be used as an inoculum or as a source of biogas. Explain

Q.30 Pyramid of numbers :-

4

It shows the number of individuals per unit area at each trophic level. It is usually upright, e.g. in grasslands, however, in a parasitic food chain, a single plant may support the growth of many herbivores and each herbivore in turn may provide nutrition to several parasites, which support many hyperparasites.

Pyramid of biomass:-

It is the representation of the total biomass present (sequence wise) per unit area at different trophic levels. Pyramid of biomass is upright for grassland and forest ecosystems. In a pond, the producers are small organisms, their biomass is least, and this value gradually shows an increase towards the apex of the pyramid, thus making the pyramid of biomass inverted in shape.

- (a) Why the pyramid of energy is always upright? Explain.
 (b) Construct an ideal pyramid of energy when 1,000,000 joules of sunlight is available. Label all its trophic levels.(four trophic levels)
 (c) Write any two limitations of ecological pyramids.

OR

Explain the significance of ecological pyramid with the help of an example.

SECTION -E

- Q.31** Trace the development of a megaspore mother cell of a flower into a mature ovule. Give a labeled diagram of the final stage.

5

OR

Describe oogenesis in a human female? What promotes the completion of second meiotic division in oogenesis?

- Q.32** (a) How many codons code for amino acids and how many do not?

5

- (b) Explain the following giving one example of each:
 (i) specific codon
 (ii) degenerate codon
 (iii) universal codon
 (iv) initiator codon.

OR

- (a) Why is tRNA called an adaptor?
 (b) Draw and label a secondary structure of tRNA. How does the actual structure of tRNA look like?

- Q.33** Name the components a bioreactor must possess to achieve the desired product? 5
 What is Bioreactor? What are the advantages of Stirred tank Bioreactor over Shake flask. Show diagrammatically a simple Stirred tank Bioreactor?

OR

What is Restriction enzyme? Why do bacteria have these restriction enzymes. Show diagrammatically a restriction enzyme its recognition & the product it produces?

68/01/2026

केंद्रीय विद्यालय संगठन, अहमदाबाद संभाग SET - B

KENDRIYA VIDYALAYA SANGATHAN, AHMEDABAD REGION

कक्षा बारहवीं प्री बोर्ड II परीक्षा (2025-26)

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M.M.-70

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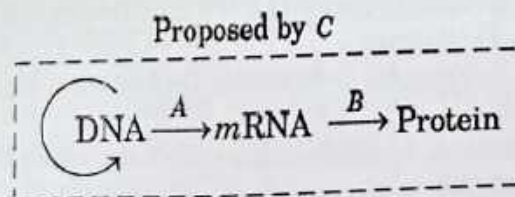
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SECTION -A

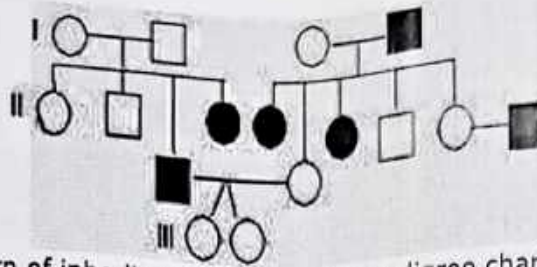
Q.1 A couple has two daughters. What is the probability that the third child will also be a female? 1
A. 25% B. 50% C. 75% D. 100%

Q.2 The diagram shows an important concept in the genetic implication of DNA. Fill in the blanks A to C. 1



- (a) A-transcription, B-replication, C-James Watson
(b) A-translation, B-transcription, C-Erwin Chargaff
(c) A-transcription, B-translation, C-Francis Crick
(d) A-translation, B-extension, C-Rosalind Franklin

Q.3



What is the pattern of inheritance in the above pedigree chart?

- A. Autosomal dominant B. Autosomal recessive
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Q.4

Important RNA processing events lead to specialized end sequences in most human mRNAs:

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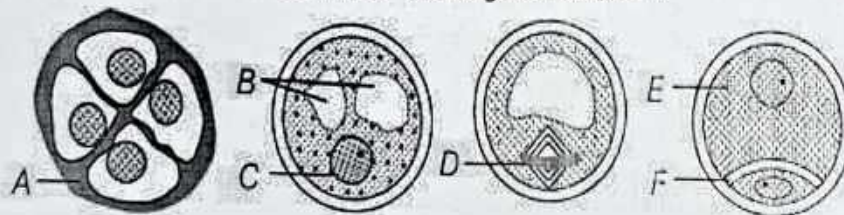
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During parturition, a pregnant woman is having prolonged labour pains and child birth has to be fastened. It is advisable to administer a hormone that can

- A. increase the metabolic rate. B. release glucose in the blood.
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Q.6

Identify the structures marked A to F in the given diagram.



- (a) A-Asymmetric nucleus, B-Nucleus, C-Generative cell, D-Vegetative cell, E-Pollen, F-Pollen tetrad
(b) A-Pollen tetrad, B-Pollen, C-Generative cell, D-Vegetative cell, E-Asymmetric spindle, F-Nucleus
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Q.7

The correct sequence of hormone secretion from beginning of menstruation is

- A. FSH, progesterone, estrogen. B. estrogen, FSH, progesterone.
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Q.8

Penetration of the sperm in the ovum is followed by

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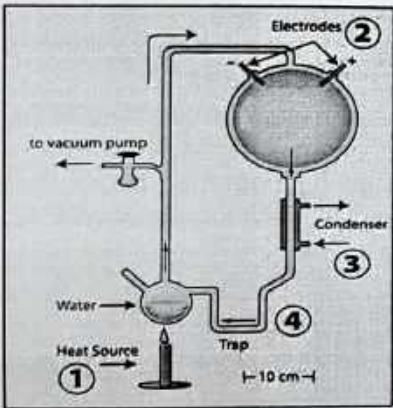
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- Q.28  3
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SECTION -D

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Q.30

Pyramid of numbers :-

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(c) Write any two limitations of ecological pyramids.

OR

Explain the significance of ecological pyramid with the help of an example.

SECTION -E

Q.31

Trace the development of a megaspore mother cell of a flower into a mature ovule. Give a labeled diagram of the final stage.

OR

Describe oogenesis in a human female? What promotes the completion of second meiotic division in oogenesis?

Q.32

(a) How many codons code for amino acids and how many do not?

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OR

(a) Why is tRNA called an adaptor?

(b) Draw and label a secondary structure of tRNA. How does the actual structure of tRNA look like?

Q.33

Name the components a bioreactor must possess to achieve the desired product?

What is Bioreactor? What are the advantages of Stirred tank Bioreactor over Shake flask. Show diagrammatically a simple Stirred tank Bioreactor?

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