

PMSHRI KENDRIYA VIDYALAYA NO-1, SAMBALPUR

Autumn Holiday Homework

Session 2026-27

Class 12th



All subjects

Subject: PHYSICS (042)
Sample Question Paper
Class – XII
Academic Session 2026–27

Maximum Marks: 70

Time Allowed: 3 hours

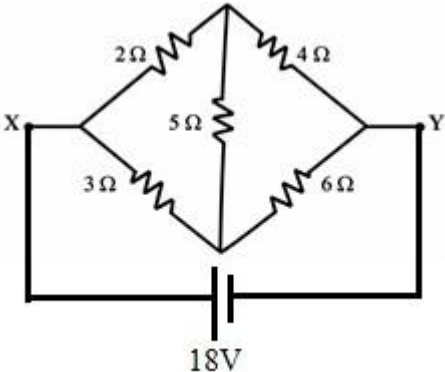
General Instructions

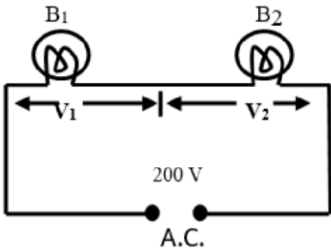
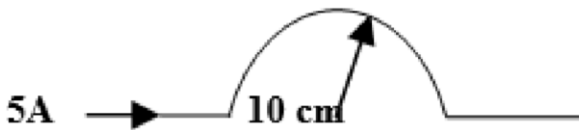
- (1) There are 33 questions in all. All questions are compulsory.
- (2) This question paper has five sections: Section A, Section B, Section C, Section D and Section E.
- (3) All the sections are compulsory.
- (4) Section A contains sixteen questions, twelve MCQ and four Assertion-Reasoning based of 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, 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.
 - i. $c = 3 \times 10^8 \text{ m/s}$
 - ii. $m_e = 9.1 \times 10^{-31} \text{ kg}$
 - iii. $m_p = 1.7 \times 10^{-27} \text{ kg}$
 - iv. $e = 1.6 \times 10^{-19} \text{ C}$
 - v. $\mu_0 = 4\pi \times 10^{-7} \text{ T m A}^{-1}$
 - vi. $h = 6.63 \times 10^{-34} \text{ J s}$
 - vii. $\epsilon_0 = 8.854 \times 10^{-12} \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2}$
 - viii. Avogadro's number = 6.023×10^{23} per gram mole
 - ix. radius of nucleus $\approx 10^{-15} \text{ m}$

SECTION A			(16 x 1 = 16)
Q.No.	Question	Marks	
1.	A point charge +Q is placed at the centre of a spherical Gaussian surface of radius R . If the radius of the sphere is doubled, the electric flux through the surface will A. become half B. become double C. remain the same D. become four times	1	

*There is no change in the Question Paper Design and Assessment Pattern for Academic Session 2026-27.

2.	If two identical heaters each rated as (1000 W, 220 V) are connected in parallel to 220 V, then the total power consumed is- A. 200 W B. 250 W C. 2000 W D. 2500 W	1
3.	An infinitely long cylinder is kept parallel to a uniform magnetic field B directed along negative y –axis. What will be the direction of induced current as seen from the y axis? A. clockwise of the negative y-axis B. anticlockwise of the negative y-axis C. no current will be induced D. along the direction of the magnetic field	1
4.	If electric field associated with an electromagnetic wave is given by $\mathbf{E} = 30 \sin (0.2\pi \times 10^{-4} \text{ m}^{-1}x - 0.6 \pi \times 10^4 \text{ Hz } t) \hat{j}$ then the direction of propagation of the wave is along, A. $\hat{i}$ B. $-\hat{i}$ C. $\hat{k}$ D. $-\hat{k}$	1
5.	Which one of the following phenomenon is not explained by Huygens' construction of wave front? A. Diffraction B. Refraction C. Reflection D. Origin of spectra	1
6.	If wave front from star in nearby galaxy is detected by a telescope at the top of some mountain in India then the shape of the wavefront detected will be A. diverging spherical B. converging spherical C. plane D. cylindrical	1

7.	The binding energy per nucleon curve shows a maximum around mass number $A=56$. What does this imply about nuclei near iron (Fe)? A. They are the least stable nuclei. B. They are the most tightly bound nuclei. C. They undergo spontaneous fission releasing maximum energy. D. They cannot participate in nuclear reactions.	1															
8.	A ball of superconducting material is dipped in liquid nitrogen and placed near a bar magnet. The direction of the movement of the ball and the magnetic moment would be- <table border="1"> <thead> <tr> <th></th><th>Direction of the movement of ball</th><th>Direction of the magnetic moment</th></tr> </thead> <tbody> <tr> <td>A.</td><td>Towards the bar magnet</td><td>Opposite to that of the bar magnet</td></tr> <tr> <td>B.</td><td>Towards the bar magnet</td><td>Same direction as that of the bar magnet</td></tr> <tr> <td>C.</td><td>Away from the bar magnet</td><td>Same direction as that of the bar magnet</td></tr> <tr> <td>D.</td><td>Away from the bar magnet</td><td>Opposite to that of the bar magnet</td></tr> </tbody> </table>		Direction of the movement of ball	Direction of the magnetic moment	A.	Towards the bar magnet	Opposite to that of the bar magnet	B.	Towards the bar magnet	Same direction as that of the bar magnet	C.	Away from the bar magnet	Same direction as that of the bar magnet	D.	Away from the bar magnet	Opposite to that of the bar magnet	1
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9.	A bridge circuit is shown in the following figure. The total current flowing in the circuit is-  A. 18 A B. 5 A C. $5/18$ A D. $18/5$ A <u>For Visually Impaired Students only</u> In a Wheat-stone bridge, all the four arms have equal resistance R. If the resistance of the galvanometer arm is $2R$, the equivalent resistance of the combination as seen by the battery is- A. $2R$ B. R C. $R/2$ D. $R/4$	1															

10.	Two electric bulbs, B_1 and B_2, are connected in series to an A.C. supply of 200 V. The power ratings printed on the bulbs are:  • B_1: 200 V, 60 W • B_2: 200 V, 100 W Using their rated voltage–power information, the ratio of their resistances R_1/R_2 is- A. 5:3 B. 3:5 C. 3:4 D. 4:3	1
11.	If nucleus scaled to football size is approximately 22cm, then the radius of the orbit of electron will be approximately: A. 22 cm B. 22 m C. 22 km D. 22000 km	1
12.	A current of 5A is passing through a long wire which has semicircular loop of radius 10 cm as shown in the figure-  The magnetic field produced at the center of the loop is- A. $2 \pi \mu T$ B. $4 \pi \mu T$ C. $5 \pi \mu T$ D. $8 \pi \mu T$	1

	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.	
	A. both Assertion and Reason are true and Reason is the correct explanation of Assertion. B. both Assertion and Reason are true but Reason is not the correct explanation of Assertion. C. Assertion is true but Reason is false. D. both Assertion and Reason are false.	
13.	Assertion (A): In Rutherford's scattering experiment, most of the alpha particles passed through the gold foil undeflected. Reason (R): The electrons in the atom are very light and do not affect the path of the alpha particles significantly.	1
14.	A convex lens of focal length 20 cm is used to form a real image of a point object placed 30 cm from the lens. The lens is then immersed in water of refractive index 1.33 (the lens material has refractive index 1.5). Assertion (A): The focal length of the lens increases when it is immersed in water. Reason (R): The focal length of a lens depends on the relative refractive index of the lens material with respect to the surrounding medium, as given by the lens maker's formula.	1
15.	In Young's double slit experiment, the distance between the slits is 0.25mm and the screen is placed 1.0m away. A student uses monochromatic light of wavelength 500nm. Assertion (A): The fringe width observed on the screen will be 2.0mm. Reason (R): The fringe width in YDSE is directly proportional to the slit separation and inversely proportional to the wavelength of light.	1
16.	Assertion (A): If a conductor is placed in an external electric field, the electric field inside the conductor becomes infinity in electrostatic equilibrium. Reason (R): Free electrons inside the conductor rearrange themselves in such a way that the internal electric field is in the same direction as that of the external field.	1

	SECTION B	
17.	The electric and magnetic fields associated with an electromagnetic radiation in a medium are given as follows: $E = 30 \sin (2\pi \times 10^{18} \text{rads}^{-1} t + \pi \times 10^{10} \text{m}^{-1} x) \text{Vm}^{-1}$ $B = 10^{-7} \sin (2\pi \times 10^{18} \text{rad}^{-1} t + \pi \times 10^{10} \text{m}^{-1} x) \text{T}$ I. What is the refractive index of the medium through which the wave is propagating? II. Find the frequency of the wave and identify the electromagnetic wave.	2
18.	Write the nature of path of free electrons in a conductor in the a) presence of electric field, b) absence of electric field.	2
19.	Two like charges +q and +q are placed at a distance d. What work must be done by an external agent to bring another charge +q from infinity to the midpoint of the line joining the two given charges?	2
20(A)	A certain magnetic substance is found to have a relative permeability of 800. What type of magnetic material is it? Write any two characteristics that such a material exhibits. OR	2
20(B)	State Gauss's law of magnetism. Also discuss its significance.	
21(A)	I. Why hydrogen spectral lines are considered to be a fingerprint of the element? II. If energy of an electron of the hydrogen atom in ground state is -13.6 eV, what should be the minimum energy of photon which can ionize the atom? OR	2
21(B)	State Bohr's quantization condition for defining stationary orbit. How does de Broglie hypothesis explain the stationary orbit?	
	SECTION C	
22.	Compare the energy band diagrams of metals, insulators, and semiconductors. I. Explain how the band gap determines conductivity. II. Apply this reasoning to justify why diamond (C) is an insulator while tin (Sn) is a conductor, though both are the elements of group IV.	3

23.	Explain- I. It is easier to start a car engine on a warm day than on a chilly day. II. The resistance of our body is so large, even then one experiences a strong shock (sometimes even fatal)) when one accidentally touches the live wire of, say 240 V supply. III. Heat is generated continuously in an electric heater but its temperature becomes constant after some time.	3
24.	The atomic mass of $^{16}_8\text{O}$ is 15.99493 u. Calculate the binding energy per nucleon of the oxygen nucleus. (Given: mass of proton = 1.00727 u, mass of neutron = 1.00866 u, $1\text{ u} = 931.5\text{ MeV}/c^2$)	3
25.	A diamond has a refractive index of 2.42. I. A ray of light inside the diamond strikes the surface at an angle of incidence of 30°. State whether it will undergo refraction or total internal reflection. II. Explain why diamonds sparkle when cut properly.	2+1
26.	Derive Snell's law of refraction using Huygens' wave theory. What prediction of the wave theory was later experimentally verified?	3
27(A)	I. An ammeter has an internal resistance of $13\ \Omega$ and is originally designed to measure currents only up to 100 A. To extend its range for high-current measurements, a shunt resistor is connected in parallel with it. After adding the shunt, the same meter can now read currents as high as 750 A without damage. Using the principle of current division in parallel circuits, determine the value of the shunt resistance required to increase the measuring range of the ammeter. II. The coil of a moving coil galvanometer is wound over a metal frame. Why? OR	3
27(B)	I. A small current loop behaves like a tiny magnet when placed in a magnetic field. Using this idea, explain what physical quantity determines the strength and orientation of such a magnetic dipole. Also state the SI unit of this quantity. II. A steel wire of length l has a magnetic moment m. It is bent into a semicircular arc. What is its new magnetic moment?	

28.	I. A bar magnet falls from a height through a metal ring. Its acceleration will be less than 'g'. Explain. II. A coil of copper wire is wound uniformly on a wooden equilateral triangular frame. If each side of the triangle is increased to 5 times its original length, while keeping the number of turns per unit length unchanged, how does the self-inductance of the coil change?	3
	SECTION D	
29.	In 2023, researchers developed flexible semiconductor films using organic polymers that could be printed like newspaper sheets. These films can bend, fold, and still conduct electricity efficiently. Unlike traditional silicon chips, polymer semiconductors are lightweight, biodegradable, and can be integrated into clothing or medical patches. Imagine a shirt that monitors your heartbeat or a bandage that tracks wound healing in real time. Such innovations extend the idea of semiconductors beyond rigid circuits, showing how manipulating band gaps and carrier mobility in new materials can revolutionize electronics for healthcare, sustainability, and wearable technology.	
	I. Which advantage of semiconductors makes them ideal for wearable devices like smart shirts? A. High voltage operation (~100 V) B. Bulky design and short life C. Low power consumption and reliability D. Requirement of external heating	1
	II. Carbon (diamond) has a band gap of 5.4 eV, while silicon has 1.1 eV. Why is silicon used in electronic devices but not the diamond? A. Diamond has too many free electrons. B. Diamond's band gap is too large for thermal excitation at room temperature. C. Silicon has weaker covalent bonds than diamond. D. Diamond cannot form covalent bonds.	1
	III. In an intrinsic semiconductor at room temperature A. only electrons contribute to conduction. B. only holes contribute to conduction. C. number of electrons equals number of holes. D. no conduction occurs at all.	1
	IV. How will you use the concept of majority and minority carriers to explain the efficiency of polymer semiconductors in wearable technology?	1

30.	In 1905, Albert Einstein explained the photoelectric effect by proposing that light consists of discrete packets of energy called photons. Each photon carries an energy $E=h\nu$. When a photon strikes a metal surface, it can transfer its energy to an electron. If the photon's energy exceeds the work function of the metal, the electron can be emitted with maximum kinetic energy $K_{\max}=h\nu-\phi_0$. This discovery challenged the classical wave theory, which predicted that electron emission should depend only on the intensity of light. Instead, experiments showed that emission of electrons depends on frequency too, proving the particle nature of light.	
	I. Define the term <i>work function</i> .	1
	II. Why the increase in the intensity of light does not increase the maximum kinetic energy of photoelectrons?	1
	III. A metal surface has a work function of 2 eV. The light of frequency $1.2 \times 10^{15}\text{Hz}$ falls on it. Which statement is correct? A. No electron is emitted because the intensity is low. B. Electrons are emitted with maximum kinetic energy less than 2 eV. C. Electrons are emitted with maximum kinetic energy greater than 0 eV. D. Electron emission depends only on the intensity of light and not on the frequency.	1
	IV. Which observation/s directly contradicts the classical wave theory of light? A. Photoelectric current increases with intensity B. The maximum kinetic energy depends only on the frequency and not on the intensity. C. The electrons are emitted instantaneously. D. Both B and C.	1
	SECTION E	
31(A)	I. An isolated conductor cannot have a large capacitance. Why? II. How would you connect 6 μF , 9 μF and 18 μF capacitors to obtain- i. the minimum capacitance ii. the maximum capacitance III. The capacitance of a parallel plate capacitor is increased as the area of the plates increases. What are the other two factors on which the capacitance depends?	2+2+1
	OR	

31(B)	I. Show that the electric field at any point is equal to the negative of the potential gradient at that point. II. A small metallic sphere is gradually charged in open air. It is observed that electrical breakdown of air occurs when the electric field at its surface reaches $2.5 \times 10^6 \text{ V m}^{-1}$. If the sphere is allowed to attain a maximum potential of $5 \times 10^5 \text{ V}$ without causing any discharge, determine the minimum radius the insulated sphere must have.	3+2
32(A)	A compound microscope consists of an objective lens of focal length 2 cm and an eyepiece lens of focal length 5 cm. The object is placed 2.2 cm from the objective lens. I. Calculate the position of the image formed by the objective lens. II. The eyepiece is so placed that the final image is formed at infinity. Find the magnifying power of the microscope. III. Explain briefly why the compound microscope provides much higher magnification compared to a simple magnifier.	2+2+1
	OR	
32(B)	An astronomical telescope uses an objective lens of focal length 100 cm and an eyepiece of focal length 5 cm. I. Calculate the magnifying power of the telescope when the final image is formed at infinity. II. If the least distance of distinct vision of the observer is 25 cm, calculate the magnifying power when the final image is formed at this distance. III. Explain why the objective lens of an astronomical telescope is made with a large focal length and aperture, while the eyepiece has a small focal length.	
33(A)	A certain electrical device is used to convert an alternating voltage of smaller magnitude into a much larger alternating voltage without violating the law of conservation of energy. I. With the help of a neat labelled diagram, describe the principle on which this device operates and explain how it increases the voltage. II. State the basic working mechanism of the device and mention the condition required in its input signal for proper functioning. III. Give one reason why this device does not operate with 100% efficiency in practical situations.	2+2+1
	OR	
33(B)	I. What do you mean by the resonance condition of a series LCR–circuit? II. Write an expression for the resonant frequency. Describe the use of a series resonant circuit in the tuning of a radio receiver.	3+2

HOLIDAY HOMEWORK CLASS – 12 (CHEMISTRY)

- Write structures of the compounds whose IUPAC names are as follows:
 - 2-Methylbutan-2-ol
 - 1-Phenylpropan-2-ol
 - 3,5-Dimethylhexane –1, 3, 5-triol
 - 2,3 – Diethylphenol
 - 1 – Ethoxypropane
 - 2-Ethoxy-3-methylpentane
 - Cyclohexylmethanol
 - 3-Cyclohexylpentan-3-ol
 - Cyclopent-3-en-1-ol
 - 4-Chloro-3-ethylbutan-1-ol.
- Draw the structures of all isomeric alcohols of molecular formula $C_5H_{12}O$ and give their IUPAC names.
 - Classify the isomers of alcohols as primary, secondary and tertiary alcohols.
- Explain why propanol has higher boiling point than that of the hydrocarbon, butane?
- Alcohols are comparatively more soluble in water than hydrocarbons of comparable molecular masses. Explain this fact.
- What is meant by hydroboration-oxidation reaction? Illustrate it with an example.
- Give the structures and IUPAC names of monohydric phenols of molecular formula, C_7H_8O .
- While separating a mixture of ortho and para nitrophenols by steam distillation, name the isomer which will be steam volatile. Give reason.
- Give the equations of reactions for the preparation of phenol from cumene.
- Write chemical reaction for the preparation of phenol from chlorobenzene.
- Write the mechanism of hydration of ethene to yield ethanol.
- You are given benzene, conc. H_2SO_4 and $NaOH$. Write the equations for the preparation of phenol using these reagents.
- 7.13 Show how will you synthesise:
 - 1-phenylethanol from a suitable alkene.
 - cyclohexylmethanol using an alkyl halide by an SN_2 reaction.
 - pentan-1-ol using a suitable alkyl halide?
- Give two reactions that show the acidic nature of phenol. Compare acidity of phenol with that of ethanol.
- Explain why is ortho nitrophenol more acidic than ortho methoxyphenol ?
- Explain how does the $-OH$ group attached to a carbon of benzene ring activate it towards electrophilic substitution?
- Give equations of the following reactions:
 - Oxidation of propan-1-ol with alkaline $KMnO_4$ solution.
 - Bromine in CS_2 with phenol.
 - Dilute HNO_3 with phenol.
 - Treating phenol with chloroform in presence of aqueous $NaOH$.
- Explain the following with an example.
 - Kolbe's reaction.
 - Reimer-Tiemann reaction.
 - Williamson ether synthesis.
 - Unsymmetrical ether.
- Write the mechanism of acid dehydration of ethanol to yield ethene.
- How are the following conversions carried out?
 - Propene $\rightarrow$ Propan-2-ol.
 - Benzyl chloride $\rightarrow$ Benzyl alcohol.
 - Ethyl magnesium chloride $\rightarrow$ Propan-1-ol.
 - Methyl magnesium bromide $\rightarrow$ 2-Methylpropan-2-ol.
- Name the reagents used in the following reactions:
 - Oxidation of a primary alcohol to carboxylic acid.
 - Oxidation of a primary alcohol to aldehyde.
 - Bromination of phenol to 2,4,6-tribromophenol.
 - Benzyl alcohol to benzoic acid.
 - Dehydration of propan-2-ol to propene
 - Butan-2-one to butan-2-ol.
- Give reason for the higher boiling point of ethanol in comparison to methoxymethane.

PM SHRI KENDRIYA VIDYALAYA NO.1 SAMBALPUR (2026-27)
CLASS: XII AUTUMN BREAK HOLIDAY HOMEWORK MATHS

- Find the points on the line $\frac{x+2}{3} = \frac{y+1}{2} = \frac{z-3}{2}$ at a distance of 5 units from the point $P(1, 3, 3)$. (2M)
- Three vectors $\vec{a}, \vec{b}$ and $\vec{c}$ satisfy the condition $\vec{a} + \vec{b} + \vec{c} = \vec{0}$. Evaluate the quantity $\mu = \vec{a} \cdot \vec{b} + \vec{b} \cdot \vec{c} + \vec{c} \cdot \vec{a}$, if $|\vec{a}| = 3, |\vec{b}| = 4$ and $|\vec{c}| = 2$. (3M)
- Find the vector and Cartesian equations of the lines which is perpendicular to the lines with equations $\frac{x+2}{1} = \frac{y-3}{2} = \frac{z+1}{4}$ and $\frac{x-1}{2} = \frac{y-2}{3} = \frac{z-3}{4}$ and passes through the point $(1, 1, 1)$. Also find the angle between the given lines. (3M)
- If $|\vec{a}| = 2, |\vec{b}| = 7$ and $\vec{a} \times \vec{b} = -3\hat{i} + \hat{j} + 2\hat{k}$, find the angle between $\vec{a}$ and $\vec{b}$. (2M)
- Find the co-ordinates of the foot of the perpendicular drawn from the point $A(-1, 8, 4)$ to the line joining points $B(0, -1, 3)$ and $C(2, -3, -1)$. Hence find the image of the point A in the line BC . (5M)
- The equation of a line is $5x - 3 = 15y + 7 = 3 - 10z$ Write the direction cosines of the line (2M)
- Find the values of p , so that the lines $l_1: \frac{1-x}{3} = \frac{7y-14}{p} = \frac{z-3}{2}$ and $l_2: \frac{7-7x}{3p} = \frac{y-5}{1} = \frac{6-z}{5}$ are perpendicular to each other. Also, find the equation of a line passing through a point $(3, 2, -4)$ and parallel to line l_1 . (5M)
- Show that the points A, B, C with position vectors $2\hat{i}-\hat{j}+\hat{k}$, $\hat{i}-3\hat{j}-5\hat{k}$ and $3\hat{i}-4\hat{j}-4\hat{k}$ respectively, are the vertices of a right-angled triangle. Hence find the area of the triangle (3M)
- If $\vec{a} = 4\hat{i} + 5\hat{j} - \hat{k}$, $\vec{b} = -\hat{i} + 4\hat{j} - 5\hat{k}$, then find another vector $\vec{d}$ which is perpendicular to both $\vec{a}$ and $\vec{b}$, and such that $\vec{c} \cdot \vec{d} = 21$ where $\vec{c} = 3\hat{i} + \hat{j} - \hat{k}$. (3M)
- Find the shortest distance between the Lines:
 $\vec{r} = (3\hat{i} + 2\hat{j} - 4\hat{k}) + \lambda(\hat{i} + 2\hat{j} + 2\hat{k})$ and $\vec{r} = (5\hat{i} - \hat{j}) + \mu(3\hat{i} + 2\hat{j} + 6\hat{k})$. Also, find whether the lines are intersecting or not (5M).
- Find a vector of magnitude 6, perpendicular to each of the vectors $\vec{a} + \vec{b}$ and $\vec{a} - \vec{b}$, where $\vec{a} = \hat{i} + \hat{j} + \hat{k}$ and $\vec{b} = \hat{i} + 2\hat{j} + 3\hat{k}$.
- Find the area of a parallelogram whose adjacent sides are $2\hat{i}-4\hat{j}+5\hat{k}$ and $3\hat{i}-6\hat{j}+2\hat{k}$.
- Find a vector in the direction of vector $\vec{a} = \hat{i} - 2\hat{j}$ that has magnitude 7 units
- Find the projection of the vector $\hat{i} + 3\hat{j} + 7\hat{k}$ on the vector $7\hat{i} - \hat{j} + 8\hat{k}$.
- If $\vec{a} = 4\hat{i} + 5\hat{j} - \hat{k}$, $\vec{b} = -\hat{i} + 4\hat{j} - 5\hat{k}$, then find another vector $\vec{d}$ which is perpendicular to both $\vec{a}$ and $\vec{b}$, and such that $\vec{c} \cdot \vec{d} = 21$ where $\vec{c} = 3\hat{i} + \hat{j} - \hat{k}$
- If $A = \begin{pmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{pmatrix}$, then find a matrix X such that $A^2 - 5A + 4I + X = 0$.

17. Solve the system of equations $\frac{2}{x} + \frac{3}{y} + \frac{10}{z} = 4$; $\frac{4}{x} - \frac{6}{y} + \frac{5}{z} = 1$; $\frac{6}{x} + \frac{9}{y} - \frac{20}{z} = 2$

18.. For two matrices $A = \begin{bmatrix} 3 & -6 & -1 \\ 2 & -5 & -1 \\ -2 & 4 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -2 & -1 \\ 0 & -1 & -1 \\ 2 & 0 & 3 \end{bmatrix}$, find the product AB and hence solve the system of equations: $3x - 6y - z = 3$, $2x - 5y - z + 2 = 0$ and $-2x + 4y + z = 5$

19. If $A = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 1 & 3 \\ 1 & -2 & 1 \end{bmatrix}$ then find A^{-1} and hence solve the system of system of linear equations: $x + y + z = 6$, $y + 3z = 7$ and $x - 2y + z = 0$

20. If $A = \begin{bmatrix} -1 & a & 2 \\ 1 & 2 & x \\ 3 & 1 & 1 \end{bmatrix}$ and $A^{-1} = \begin{bmatrix} 1 & -1 & 1 \\ -8 & 7 & -5 \\ b & y & 3 \end{bmatrix}$, find the value of $(a+x) - (b+y)$

21. Let N be the set of natural numbers and R be the relation on $N \times N$ defined by $(a, b) R (c, d)$ iff $ad = bc$ for all $a, b, c, d \in N$. Show that R is an equivalence relation.

22. Let $f: R - \left\{-\frac{4}{3}\right\} \rightarrow R$ be a function defined as $(x) = \frac{4x}{3x+4}$. Show that f is a one one function. Also check whether f is an onto function or not

23. A function $f: [0, \infty) \rightarrow [-5, \infty)$ be defined by $f(x) = 3x^2 + 9x - 5$

Prove that the function is a one-one and on-to function.

24. 1. Minimize $Z = 5x + 10y$ subject to the constraints; $x + 2y \leq 120$; $x + y \geq 6$; $x - 2y \geq 0$; $x, y \geq 0$.

25. *Maximize* $Z = 3x + 9y$ Subject to constraints $x + 3y \leq 60$, $x + y \geq 10$, $x \leq y$, $x, y \geq 0$
Solve the above L.P.P graphically.

26. Solve the following linear programming problem graphically: Maximise $z = 600x + 400y$, Subject to constraints: $x + 2y \leq 12$, $2x + y \leq 12$, $x + 1.25y \geq 5$, $x \geq 0$, $y \geq 0$

27. The corner points of the feasible region determined by the system of linear inequalities are $(0,0)$, $(4,0)$, $(2,4)$, and $(0,5)$. If the maximum value of $Z = ax + by$, where $a, b > 0$ occurs at both $(2,4)$ and $(4,0)$, then

- a) $a = 2b$ b) $2a = b$ c) $a = b$ d) $3a = b$

28. Which of the following points is not in the feasible region of the constraints: $x + 2y \leq 8$, $3x + 2y \leq 12$, $x \geq 0$, $y \geq 0$.

- (A) $(0, -1)$ (B) $(0, 1)$ (C) $(2, 2)$ (D) $(4, 0)$

CLASS XII – COMPUTER SCIENCE
HOLIDAY HOMEWORK
CBSE FINAL PROJECT: REAL-WORLD PROBLEM-SOLVING

Project Task

Form a group of two to three students and develop a useful Python-based project that solves a real-world problem. The project must use Python file handling or Python–SQL connectivity. Your goal is to create a working product or application, not merely a written report.

What You Need to Do

- Identify a genuine problem in your school, neighbourhood, home, or a local business.
- Where possible, speak to the people who experience the problem and note what they need.
- Choose a suitable project idea and explain how your application will help solve the problem.
- Plan the main features, inputs, outputs, and how data will be stored and managed.
- Begin developing the project in Python. Use file handling or connect Python with an SQL database.
- Test the application with sample data and improve it based on the results.

Suggested Project Ideas

- School utility: library book records, lost-and-found records, classroom inventory, or student activity management.
- Local business: inventory and sales records, bill/invoice generation, or daily expense tracking.
- Community support: medicine or appointment records, waste collection tracking, or a simple accessibility tool.
- Personal utility: study planner, expense tracker, or a quiz/game with score records.

Holiday Homework Submission

- Project title and names of group members.
- Problem statement and the intended users of the application.
- Proposed features and a brief plan for implementation.
- A flowchart or algorithm for the main process.
- Initial working version of the Python program, with sample input/output or screenshots.
- A short note explaining the use of file handling or Python–SQL connectivity.

Important Guidelines

- Choose a project that is practical, useful, and achievable. Additional learning of Python libraries or tools is encouraged.
- All group members should contribute and understand the code.
- Do not copy another student's project or submit copied code as your own. Acknowledge any external sources, libraries, or code used.
- Respect copyright and privacy. Do not collect or publish personal or business data without permission.
- The project should be developed progressively; the holiday work is the starting stage of the final project.

PM SHRI KENDRIYA VIDYALAYA NO.1 SAMBALPUR

HOLIDAY HOMEWORK (AUTUMN BREAK)

CLASS 12 BIOTECHNOLOGY (045)

1. Review Questions of – 1.Chapter- Microbial cell culture & Applications
2.Chapter- Plant Cell Culture & Applications
2. Solution of CBSE Sample paper -2026-27
3. Solution of Board Question Paper of Session – 202023-24 & 2024-25
4. Investigatory Projects

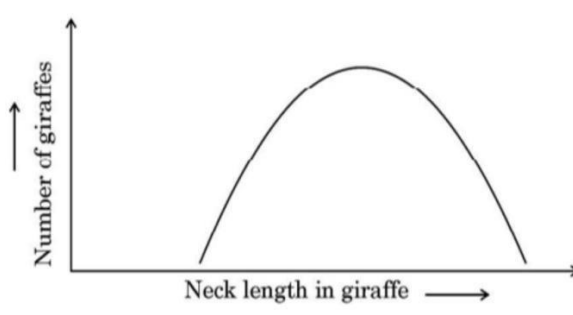
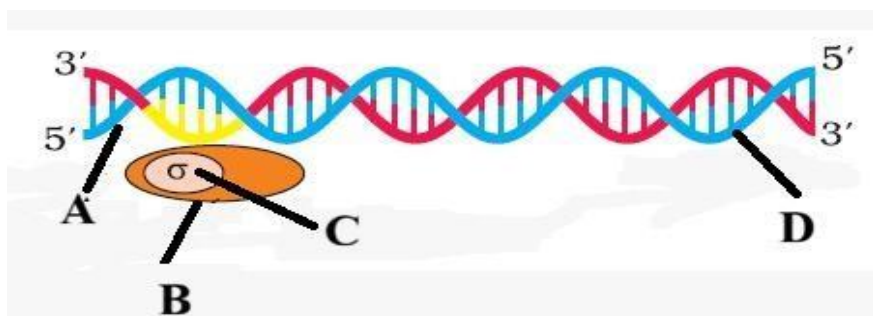
AUTMN BREAK HOMEWORK

SUBJECT : BIOLOGY

CLASS – XII

- Revise chapter 8,9,10.
- Complete your practical records.
- Solve following questions in your biology homework notebook.

Q. No.	Question	Marks
1	A researcher observes that in a particular flowering plant, the pistil matures several days before the stamens in all flowers of the plant. What is the most significant consequence of this timing difference? A. It guarantees self-pollination B. It promotes autogamy C. It ensures cross-pollination D. It leads to geitonogamy	1
2	A male patient undergoes a medical procedure where a small section of the vas deferens is cut and tied at both ends. Which of the following effects is the intended and direct result of this procedure? A. Blockage of sperm transport into the ejaculatory duct and urethra. B. Inhibition of testosterone production by the testes. C. Suppression of the formation of seminal plasma by accessory glands. D. Prevention of spermatogenesis in the seminiferous tubules.	1
3	During the early stage of human embryonic development, the blastomeres are arranged into an outer layer and an inner group of cells known as the Inner Cell Mass (ICM). What is the fundamental significance of the outer layer, the trophoblast? A. It is responsible for forming the primary germ layers (ectoderm, mesoderm, endoderm).	1
	B. It provides essential nutrients to developing embryo and helps in its implantation. C. It secretes colostrum which contains antibodies. D. It gives rise to all the organs of the future embryo (organogenesis).	

4	Select the option that gives the correct description of the process of natural selection with respect to the length of the neck of the giraffe.  A. Stabilising selection as giraffes with longer neck lengths are selected further. B. Disruptive selection as giraffes with smaller and longer neck lengths are selected. C. Directional selection as giraffes with longer neck lengths are selected. D. Stabilising selection as giraffes with medium neck lengths are selected. ----- <u>For Visually impaired students</u> Evolution of antibiotic-resistant bacterial population signifies the information that A. Acquired traits are inherited. B. Nature selects for fitness. C. Genetic variations are not a prerequisite factor for natural selection. D. The theory of spontaneous generation of life holds true.	1
5	The initiation step during the process of transcription in bacteria is shown below. Identify A, B, C and D by selecting the option:  A. A-RNA polymerase, B-Promoter, C-Sigma factor, D-DNA helix B. A-Promoter, B-Sigma factor, C-RNA polymerase, D-DNA helix C. A-Promoter, B-RNA polymerase, C-DNA helix, D-Sigma factor D. A-Promoter, B-RNA polymerase, C-Sigma factor, D-DNA helix	1

For Visually impaired students

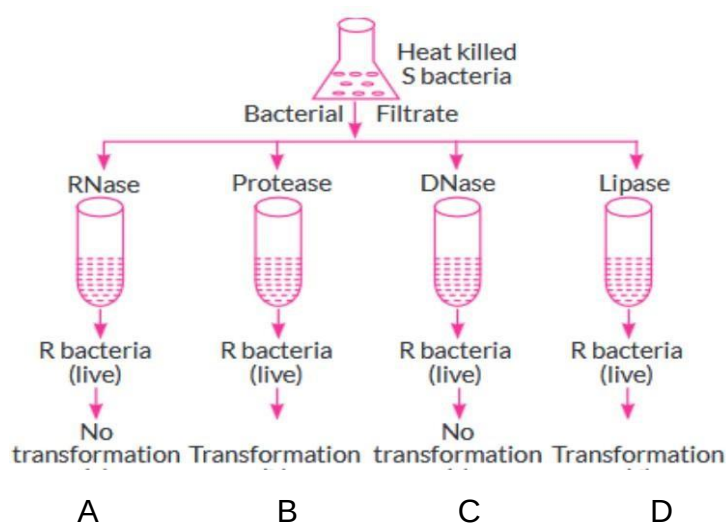
The promoter site and the terminator site for transcription are located at:

- A. 3' (downstream) end and 5' (upstream) end, respectively of the transcription unit
- B. 5' (upstream) end and 3' (downstream) end, respectively of the transcription unit
- C. the 5' (upstream) end
- D. the 3' (downstream) end

6

Given below is the illustration of the different steps of experiments conducted by MacLeod, McCarty and Avery to find the chemical nature of the 'transforming principle' as DNA. Select the option that **incorrectly** depicts the step of the experiment.

1



For Visually impaired students

In the Griffith experiment, which of the following, when injected into mice, did not cause pneumonia?

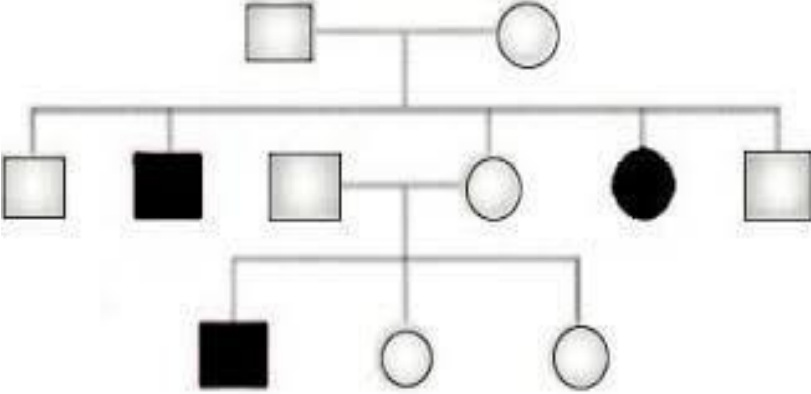
- A. Heat-killed S strain only
- B. Live R strain only
- C. Both (A) and (B)
- D. Live S strain only

7

A scientist was culturing *E.coli* in a $^{15}\text{NH}_4\text{Cl}$ medium initially, then he shifted *E.coli* to a $^{14}\text{NH}_4\text{Cl}$ medium. The DNA was extracted from *E.coli* after 60 minutes of transfer to $^{14}\text{NH}_4\text{Cl}$ Medium and performed density gradient centrifugation to check the isotope distribution in newly replicated DNA. What will be the densities of DNA molecules formed?

1

- A. 25% hybrid and 75% light
- B. 50% hybrid and 50% light
- C. 75% hybrid and 25% light
- D. 85% hybrid and 15% light

8	Study the given pedigree and identify the disease represented  A. Myotonic Dystrophy B. Sickle cell anaemia C. Haemophilia D. Colour blindness ----- <u>For Visually impaired students</u> If a genetic disease is transferred from a phenotypically normal but carrier female to only some of the male progeny the disease is: A. Autosomal dominant B. Autosomal recessive C. Sex-linked dominant D. Sex-linked recessive	1
9	A patient with fever, chest pain, cough and breathing difficulty undergoes a chest X-ray. The film shows patchy opacities and reduced clarity of lung fields. Which observation best supports pneumonia? A. Enlarged heart size B. Inflammation or fluid buildup in the lungs C. Fractured ribs D. Air pockets in the lungs	1
10	A stretch of an euchromatin has 200 nucleosomes, how many base pairs (bp) will be there in the stretch and what would be the length of the typical euchromatin? A. 20,000 bp and $13,000 \times 10^{-9}$ m B. 10,000 bp and $10,000 \times 10^{-9}$ m C. 40,000 bp and $13,600 \times 10^{-9}$ m D. 40,000 bp and $13,900 \times 10^{-9}$ m	1
11	A biotechnology company grew <i>Streptomyces</i> in a fermenter to produce an antibiotic. It was observed that Day 7 onwards, the actual yield drops sharply, even though nutrient level, temperature, and aeration remain	1

	unchanged. Also, Microscopy revealed new colonies of bacteria which were not present in the original culture. So the fermenter was stopped. What measures should be taken to prevent the fall in yield in future fermentations? A. Increasing temperature only at the end of fermentation to kill contaminants. B. Adding antibiotics to the culture so unwanted microbes cannot grow. C. Ensuring sterile handling, sterilised equipment, and aseptic transfer before and during fermentation. D. Using a genetically modified strain designed to grow faster than contaminants.	
12	A rice farmer's field, which typically thrives in waterlogged conditions and requires soil rich in nutrients like phosphorus, is experiencing a severe drought this year. The crop is also susceptible to root infestation by pathogens. Which of the following techniques is best to address all these issues? A. Adding nitrogen-fixing bacteria to the soil B. Applying chemical fertilizers C. Adding spores of <i>Glomus</i> to the soil D. Flooding the field artificially to mimic normal conditions	1
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 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): Spermatogenesis is an ongoing process throughout the reproductive life of a human male, while oogenesis is a discontinuous process. Reason (R): Oogenesis begins during the embryonic stage, gets arrested at prophase-I, resumes after puberty, and is arrested again at metaphase-II.	1
14	Assertion (A): There is no variation in the percentage recombination due to loosely or tightly linked genes. Reason (R): Linked genes result in occurrence of higher proportion of parental gene combinations.	1
15	Assertion (A): Tissue culture is used when traditional breeding technique is insufficient to keep pace with the demand of crop improvement.	1
	Reason (R): Totipotency is the ability of a single plant cell or explant to regenerate into a whole plant under sterile conditions in nutrient media.	

Section - B

*There is no change in the Question Paper Design and Assessment Pattern for Academic Session 2026-27.

16	<u>Attempt either option A or B.</u> A. Geitonogamy can be compared with cross-pollination as well as self-pollination. Comment. OR B. Mohit wants to produce hybrid seeds in a plant in his field in which male and female flowers mature at the same time and are close together. Suggest one strategy to promote only desired cross pollination and justify your answer.	2																														
18	The movement of landmasses over geological time changed the distribution and evolution of animals. Explain this idea using two examples from different regions of the world.	2																														
19	The following is a realistic example dataset and not a real world patient dataset: <table><tr><th>Sample ID</th><th>Tumor size (mm³)</th><th>Glucose level mM/litre</th><th>Oxygen level (mmHg)</th><th>Neighboring cell's viability/vitality (%)</th></tr><tr><td>1</td><td>150</td><td>2.0</td><td>15</td><td>60</td></tr><tr><td>2</td><td>50</td><td>4.5</td><td>30</td><td>85</td></tr><tr><td>3</td><td>200</td><td>1.3</td><td>10</td><td>50</td></tr><tr><td>4</td><td>100</td><td>3.0</td><td>20</td><td>70</td></tr><tr><td>5</td><td>250</td><td>0.9</td><td>7</td><td>40</td></tr></table> A. Interpret the relationship between tumor size and glucose level. B. Evaluate the data to determine how tumor progression may affect the viability/vitality of neighboring cells. Provide a brief explanation.	Sample ID	Tumor size (mm ³)	Glucose level mM/litre	Oxygen level (mmHg)	Neighboring cell's viability/vitality (%)	1	150	2.0	15	60	2	50	4.5	30	85	3	200	1.3	10	50	4	100	3.0	20	70	5	250	0.9	7	40	2
Sample ID	Tumor size (mm ³)	Glucose level mM/litre	Oxygen level (mmHg)	Neighboring cell's viability/vitality (%)																												
1	150	2.0	15	60																												
2	50	4.5	30	85																												
3	200	1.3	10	50																												
4	100	3.0	20	70																												
5	250	0.9	7	40																												
20	<u>Attempt either option A or B.</u> A. The table below shows hypothetical data comparing α-lactalbumin concentration in three types of milk, including that of Rosie, a transgenic cow designed to express human milk proteins. <table><tr><th>Source of Milk</th><th>α-lactalbumin Content approximately (g/L)</th></tr><tr><td>Normal cow's milk</td><td>0.1</td></tr><tr><td>Rosie cow's milk</td><td>2.4</td></tr><tr><td>Human milk</td><td>3.5</td></tr></table>	Source of Milk	α-lactalbumin Content approximately (g/L)	Normal cow's milk	0.1	Rosie cow's milk	2.4	Human milk	3.5	2																						
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Normal cow's milk	0.1																															
Rosie cow's milk	2.4																															
Human milk	3.5																															

	I. Assuming all other nutritional components are identical, which milk would provide the lowest nutritional contribution from α-lactalbumin?. II. If further genetic modification increases α-lactalbumin levels in Rosie to 3.5 g/L, predict one ethical concern that might arise from such a development. OR B. A farmer replaces the GM crop with a conventional variety. Predict any two challenges she/he may face. Support your answer with two reasons.	
Section - C		
21	A couple, A and B, visit a fertility clinic. Examination reveals that female A has a blockage in her fallopian tubes, but her ovaries can produce viable ova. Male B produces sperm with a very low sperm count, making natural fertilization unlikely. Which two different Assisted Reproductive Technologies (ARTs) would a doctor	3
	most likely recommend for this couple to increase their chances of conceiving? Justify your selection by briefly stating the principle behind each chosen technique concerning the couple's specific issues.	

22	In the post-fertilization embryo sac shown in figure, structure 'P' results from the fusion of one male gamete with the egg cell, and structure 'Q' results from the fusion of the other male gamete with the polar nuclei. Figure: Fertilised embryo sac in a flowering plant A. Identify structure 'P' and structure 'Q' and state their ploidy. B. Evaluate the following statement: "The division of 'P' always precedes the division of 'Q'." Justify your evaluation based on the nutritional requirements for seed development. C. Which characteristic feature of endosperm helps in its nutritive role? ----- <u>For Visually impaired students</u> A. Which two products are formed after double fertilization in the embryo sac of a flowering plant? B. State the ploidy of these two structures. C. Which of these two structures develops first during embryonic development? State its significance.	3
23	In mice, the traits for running ability and hair colour assort independently. Running (R) is dominant over walking in circles (r). Black hair (B) is dominant over brown hair (b). A heterozygous running, brown-haired female mouse was artificially inseminated using sperm from a heterozygous running, heterozygous black male. A. Write the genotypes of both parents and draw a Punnett square showing all possible offspring combinations. (1) B. Using the Punnett square, state the phenotypic ratio for: Running–Black, Running–Brown, Walking–Black, Walking–Brown. (1) C. If 64 offspring were produced, calculate how many would be expected to show the Running–Black phenotype. (1)	3
24	How can a single gene defect caused by the mutation result in Phenylketonuria (PKU)? Explain the molecular mechanism underlying pleiotropy.	3

25	Drug-use disorders often begin with occasional consumption but may progress into a compulsive state. Analyse how addiction differs from dependence in both origin and consequence, and justify why long-term drug intake forces the user to increase dose over time.	3
26	Pathogens are often considered harmful, yet they have been adapted as powerful tools in genetic engineering. Explain how pathogens have been modified into useful vectors. Describe the role of a similarly modified plant vector and animal vector.	3

Section - D

27	Madhuri, a 17-year-old girl, has been experiencing irregular periods for the past one year. Sometimes, her cycles are as short as 20 days and sometimes as long as 45 days. She occasionally has very heavy bleeding that lasts over a week, causing fatigue and weakness. A doctor reviews her menstrual diary and explains that these changes can be linked to hormonal fluctuations in the hypothalamic-pituitary-ovarian (HPO) axis. He shows Madhuri the lack of a clear ovulation peak and low progesterone levels in her recent cycles. A. Madhuri experiences heavy bleeding lasting over a week causing fatigue. What possible complication could arise from this condition? (1) B. Examine how the absence of a distinct LH (luteinizing hormone) surge in the menstrual cycle might explain both the irregularity and heaviness of Madhuri's periods. (2) <u>Attempt either subpart C or D.</u> C. Madhuri's cycles vary between 20 and 45 days. What might this irregularity indicate about her ovarian function? (1)	4
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OR

	D. If a doctor suspects hypothalamic-pituitary dysfunction in Madhuri, which hormone secretion pattern would you expect to be disrupted? (1)	
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Section - E

28	<u>Attempt either option A or B.</u> A. A short stretch of DNA strand that codes for a polypeptide is shown below: 3'—TACAAAAAGAAGAAAAAGAAGATT--5' Due to exposure to harmful UV radiation two different types of errors occurred during DNA replication affecting their sequences of bases in the DNA in two different cells. I. What is the term given to a segment of DNA that codes for a polypeptide? II. Which type of mutation could have occurred in each of the following due to the error during replication? a) 3'-- TACAAAAAGAAGAAAAAGAAAATT--5' b) 3'-- TACAAAAAGAAGAAAAAGAGATT--5' III. If DNA strand (a) codes for Methionine and sequences of Phenylalanine, mention the sequence of amino acids that will constitute the polypeptide chain after translation. How many amino acids will be translated from this strand? IV. If all the codons of the stretch code for Phenylalanine excluding the initiator codon which feature does it depict? OR B. I. If GUA is an intron how many amino acids will be translated from the mature or processed RNA. Pick out the untranslated region from the following messenger RNA and mention their location and sequence.	5
	What is its significance? 5'ACGU CGAUGACCGUAGCGUUUGUAUCUUUAGUAGUGGUAUUA GUAGGCUAAAAA3' II. If AAA is the anticodon of phenylalanine, draw the tRNA adaptor molecule, Mention the position of amino acid Phenylalanine in the sequence of polypeptide counting the triplet codons.	

29

Attempt either option A or B.

5

A. A scientist is screening bacterial transformants engineered with DNA fragments of the β -globin gene. A radioactive DNA probe complementary to the normal β -globin sequence is used. After autoradiography:

- Plates A and C show strong and weak radioactive signals respectively.
- Plate B shows no radioactivity.

Answer the following:

- I. Why does plate B fail to show radioactivity, while A and C do? (2)
- II. How can this experiment help in distinguishing a normal individual, a carrier, and a patient of sickle cell anaemia? (2)
- III. Name one other commonly used technique (apart from autoradiography) to differentiate recombinants from non-recombinants. (1)

OR

B. A student placed DNA from three different sources: bacteria, plant tissue, and fungal cells in a test tube A, B and C respectively. During the process of isolating and purifying DNA, the student added cellulase to all test tubes.

- I. Predict and explain in which trial(s) DNA isolation would fail, and why? Also suggest how it could be corrected. (2)
- II. After rectifying the mistake made in 'a', outline the steps to obtain visible spooled DNA from the sample. (2)
- III. Suggest one application of the spooled DNA in biotechnology. (1)

PM SHRI KENDRIYA VIDYALAYA NO. 1, SAMBALPUR

AUTUMN BREAK 2026

HOLIDAY HOMEWORK – CLASS XII

ENGLISH CORE (301)

Autumn Break Project Assignment

As part of the Autumn Break Holiday Homework, students of Class XII are required to complete a project on one of the topics listed below. The topics are connected with the prescribed Class XII English Core texts and are intended to develop research, critical thinking, analytical writing and communication skills. The completed project must be submitted when the Vidyalaya reopens.

Instructions for Preparing the Project Report

The project portfolio / project report must include the following components:

1. Cover Page: Title of the project, school details and details of the student.
2. Statement of Purpose / Objectives / Goals: Clearly state the purpose and objectives of the project.
3. Certificate of Completion: A certificate stating that the project has been completed under the guidance of the teacher.
4. Action Plan: A step-by-step plan for completing the assigned task.
5. Include relevant photographs or other materials relevant to the topic.
6. Essay / Report: Prepare an analytical essay or report of 800–1,000 words.
7. Student Reflection: Describe what you learnt, the challenges faced and the insights gained during the project.
8. List of Resources / Bibliography: Provide details of books, articles, reports, websites and other sources consulted.

General Guidelines

- Choose the topic assigned by the subject teacher.
- Use authentic sources and present information in your own words.
- Analyse the information collected and draw your own conclusions.
- Maintain neatness, originality, proper organisation and grammatical accuracy.
- Be prepared to present your project before the teacher.

Suggested Project Topics

1. The Importance of Mother Tongue in Preserving Cultural Identity
Text connection: The Last Lesson
2. Lost Childhood: Child Labour, Poverty and the Right to Education
Text connection: Lost Spring

3. Overcoming Fear: The Psychology of Courage and Perseverance
Text connection: Deep Water
4. The Rattrap of Modern Life: Consumerism, Greed and Human Kindness
Text connection: The Rattrap
5. Indigo: The Power of Non-Violent Resistance and Grassroots Leadership
Text connection: Indigo
6. Behind the Glamour: Working Conditions and Hierarchies in the Film Industry
Text connection: Poets and Pancakes
7. Ageing Parents and the Emotional Responsibilities of Young Adults
Text connection: My Mother at Sixty-Six
8. The Need for Silence and Self-Reflection in a Fast-Paced World
Text connection: Keeping Quiet
9. Nature as a Source of Healing, Hope and Inspiration
Text connection: A Thing of Beauty
10. Rural–Urban Inequality: Aspirations, Neglect and Inclusive Development
Text connection: A Roadside Stand
11. Escapism in Modern Society: Why Do People Long for a Different Reality?
Text connection: The Third Level
12. Human Arrogance and the Abuse of Power: Lessons from The Tiger King
Text connection: The Tiger King
13. Climate Change and the Fragile Future of Planet Earth
Text connection: Journey to the End of the Earth
14. Humanity Beyond Nationality: Ethics, Compassion and Professional Duty
Text connection: The Enemy
15. Disability, Social Stigma and the Power of Empathy
Text connection: On the Face of It

Sample Paper 1

ACCOUNTANCY — CLASS XII

TIME ALLOWED-3 Hours

MAXIMUM MARKS-80

Syllabus: Accounting for Partnership Firms and Accounting for Companies

General instructions

Section A — Objective-type questions

20 × 1 = 20 marks

Choose the correct option unless otherwise indicated.

1. In the absence of a partnership deed, interest on a partner's loan to the firm is allowed at:
(a) 6% per annum (b) 12% per annum (c) 10% per annum (d) No interest
2. A and B share profits in the ratio of 3:2. They admit C for $\frac{1}{5}$ share, which C acquires equally from A and B. The new profit-sharing ratio will be:
(a) 5:3:2 (b) 5:3:2 is not correct; calculate the new ratio (c) 3:2:1 (d) 2:2:1
3. . Goodwill is valued at three years' purchase of average profits. Profits for the last three years were ₹40,000, ₹50,000 and ₹60,000. Goodwill will be:
(a) ₹50,000 (b) ₹1,50,000 (c) ₹1,80,000 (d) ₹1,20,000
4. At the time of admission of a partner, an increase in the value of an asset is credited to:
(a) Revaluation Account (b) Asset Account
(c) Partners' Capital Accounts directly (d) Profit and Loss Appropriation Account
5. . A, B and C share profits in the ratio of 5:3:2. C retires and A and B decide to share future profits in the ratio of 3:2. The gaining ratio is:
(a) 1:1 (b) 2:1 (c) 3:2 (d) 5:3
6. . On dissolution of a partnership firm, an unrecorded asset realised ₹12,000. The amount will be credited to:
(a) Partners' Capital Accounts (b) Cash Account
(c) Realisation Account (d) Profit and Loss Appropriation Account
7. A partner is guaranteed a minimum profit of ₹30,000. His actual share of profit is ₹24,000. The deficiency is:
(a) ₹24,000 (b) ₹30,000 (c) ₹6,000 (d) ₹54,000
8. . Which of the following is a charge against profits rather than an appropriation of profits?
(a) Interest on partners' capital (b) Partners' salary
(c) Transfer to General Reserve (d) Interest on a partner's loan
9. A company issues 1,000 equity shares of ₹10 each at a premium of ₹2 per share. The amount credited to Securities Premium Account on issue is:
(a) ₹10,000 (b) ₹2,000 (c) ₹12,000 (d) ₹1,000

- 10.** A company forfeits shares on which ₹6 per share has been received towards share capital. The Share Forfeiture Account is credited with:
- (a) The face value of shares (b) The amount received towards share capital
(c) The amount unpaid on shares (d) The amount due on allotment only
- 11.** . Debentures represent:
- (a) Owners' funds (b) Revenue reserves (c) Borrowed funds (d) Share premium
- 12.** . A company issues 500, 10% debentures of ₹100 each at par. The total annual interest, before tax considerations, is:
- (a) ₹5,000 (b) ₹10,000 (c) ₹50,000 (d) ₹500
- 13.** Securities Premium may be used for which of the following purposes, subject to the Companies Act?
- (a) Payment of ordinary dividends (b) Writing off eligible preliminary expenses
(c) Payment of directors' salaries (d) Distribution as routine revenue profit
- 14.** . When shares are reissued at a discount, the discount on reissue cannot exceed:
- (a) The face value of the shares (b) The securities premium originally charged
(c) The amount forfeited on those shares (d) The amount of authorised capital
- 15.** Assertion–Reason
- Assertion (A): Interest on a partner's loan is a charge against profits.
- Reason (R): It is payable according to the applicable agreement or law, even when the firm incurs a loss, subject to the relevant terms.
- Choose the correct option:
- (a) Both A and R are true, and R correctly explains A.
(b) Both A and R are true, but R does not correctly explain A.
(c) A is true, but R is false.
(d) A is false, but R is true.
- 16.** A company acquires assets of ₹5,00,000 and liabilities of ₹1,00,000 for a purchase consideration of ₹3,50,000. The result is:
- (a) Goodwill of ₹50,000 (b) Capital reserve of ₹50,000
(c) Goodwill of ₹1,50,000 (d) Capital reserve of ₹1,50,000

Questions 17–20 are based on the following case.

Sunrise Ltd. invited applications for 20,000 equity shares of ₹10 each at par. The amount was payable as ₹3 on application, ₹4 on allotment and ₹3 on first and final call. Applications were received for 25,000 shares. Applications for 5,000 shares were rejected and the remaining applicants were allotted shares in full. All amounts due were received.

17. The amount received on application was:

- (a) ₹60,000 (b) ₹75,000 (c) ₹50,000 (d) ₹45,000

18. The amount transferred to Share Capital from application money was:

- (a) ₹60,000 (b) ₹75,000 (c) ₹50,000 (d) ₹20,000

19. The amount due on allotment was:

- (a) ₹80,000 (b) ₹60,000 (c) ₹40,000 (d) ₹1,00,000

20. The total amount received from shareholders for the issue was:

- (a) ₹2,00,000 (b) ₹1,50,000 (c) ₹2,50,000 (d) ₹1,40,000

Section B — Short-answer questions

2 × 3 = 6 marks

21. A and B are partners sharing profits in the ratio of 3:2. Their capitals are ₹2,00,000 and ₹1,50,000 respectively. Interest on capital is allowed at 10% per annum. The firm earned a profit of ₹20,000 before providing interest on capital. Calculate the interest on capital payable to each partner and state how the remaining profit or deficiency will be treated.
22. Bright Ltd. issued 1,000, 9% debentures of ₹100 each at a premium of 5%, redeemable at a premium of 10%. Pass the journal entry for the issue of debentures, assuming the entire amount is received in cash.

Section C — Short-answer questions

6 × 4 = 24 marks

23. A and B are partners sharing profits in the ratio of 3:2. Their capitals on 1 April 2025 were ₹2,00,000 and ₹1,50,000 respectively. The partnership deed provides for interest on capital at 10% per annum and a salary of ₹12,000 per annum to A. The net profit for the year ended 31 March 2026, before these appropriations, was ₹60,000. Prepare the Profit and Loss Appropriation Account, assuming the deed is silent on whether interest on capital is payable in the event of insufficient profits and apply the relevant partnership provisions.
24. P and Q share profits in the ratio of 3:2. They admit R for a $\frac{1}{5}$ share in profits. R brings ₹50,000 as capital and ₹20,000 as premium for goodwill. The new profit-sharing ratio of P, Q and R is 2:2:1. Calculate the sacrificing ratio and pass the journal entry for goodwill brought in by R.
25. A company forfeited 500 equity shares of ₹10 each, issued at par, on which ₹7 per share had been called and ₹5 per share had been received. The shares were reissued at ₹8 per share as fully paid. Pass the journal entries for forfeiture and reissue and calculate the amount transferred to Capital Reserve.
26. Nova Ltd. purchased the business of Orion Ltd. for ₹6,00,000. The assets taken over were valued at ₹8,00,000 and liabilities taken over at ₹2,50,000. The purchase consideration was discharged by issuing equity shares of ₹10 each at a premium of 20%.

Calculate the net assets acquired, goodwill or capital reserve, and the number of shares issued.
27. A and B share profits in the ratio of 3:2. Their capitals are ₹3,00,000 and ₹2,00,000 respectively. They admit C for a $\frac{1}{4}$ share. Goodwill of the firm is valued at ₹1,00,000. C brings his share of goodwill in cash. Calculate C's share of goodwill and the amount credited to the sacrificing partners, assuming the old ratio is the sacrificing ratio.
28. A company issued 2,000, 12% debentures of ₹100 each at a discount of 5%, redeemable at a premium of 10%.

Calculate:

(a) Total nominal value of debentures. (b) Cash received on issue. (c) Loss on issue of debentures. (d) Annual debenture interest.

Section D — Long-answer questions

5 × 6 = 30 marks

29. A, B and C are partners sharing profits and losses in the ratio of 3:2:1. Their Balance Sheet as at 31 March 2026 showed the following balances:

Liabilities	Amount (₹)	Assets	Amount (₹)
Creditors	60,000	Cash	30,000
General Reserve	30,000	Debtors	50,000
A's Capital	1,00,000	Stock	40,000
B's Capital	80,000	Machinery	1,20,000
C's Capital	70,000	Building	1,00,000
Total	3,40,000	Total	3,40,000

They decide to admit D for a $\frac{1}{6}$ share in profits on the following terms:

1. D brings ₹60,000 as capital and ₹24,000 as premium for goodwill.
2. Building is appreciated by 10%.
3. Stock is reduced by 10%.
4. A provision for doubtful debts of ₹2,000 is to be created.
5. General Reserve is to be distributed among the old partners.

Prepare the Revaluation Account and Partners' Capital Accounts after the above adjustments.

30. X, Y and Z are partners sharing profits in the ratio of 2:2:1. Z retires on 31 March 2026. The following information is available:

- X's capital: ₹1,20,000
- Y's capital: ₹1,00,000
- Z's capital: ₹80,000
- General Reserve: ₹25,000
- Goodwill of the firm: ₹60,000
- Machinery is appreciated by ₹15,000.
- Stock is reduced by ₹5,000.
- An unrecorded liability of ₹4,000 is to be recognised.

X and Y decide to share future profits in the ratio of 3:2. Z's amount due is transferred to his Loan Account.

Prepare the Revaluation Account, Partners' Capital Accounts and calculate the amount transferred to Z's Loan Account.

31. A company issued 10,000 equity shares of ₹10 each at a premium of ₹2 per share. The amount was payable as:

- Application: ₹3 per share
- Allotment: ₹5 per share, including the premium
- First and final call: ₹4 per share

All shares were subscribed. A shareholder holding 500 shares failed to pay the allotment and call money. The shares were forfeited after the call became due.

Pass the necessary journal entries for:

(a) Application and allotment. (b) First and final call. (c) Forfeiture of the 500 shares.

32. A company issued 5,000, 10% debentures of ₹100 each at a discount of 4%, redeemable at a premium of 5%. The entire issue was subscribed and the amount was received in full.

Pass the journal entry for the issue and calculate:

(a) Total proceeds received. (b) Loss on issue of debentures. (c) Annual interest on debentures. (d) Amount payable on redemption.

33. A, B and C are partners sharing profits in the ratio of 5:3:2. They decide to dissolve the firm on 31 March 2026. Their assets (excluding cash) are ₹2,00,000, creditors are ₹60,000 and the partners' capitals are ₹80,000, ₹50,000 and ₹30,000 respectively. Cash in hand is ₹20,000.

The following transactions take place:

1. Assets realised ₹1,70,000.
2. Creditors were settled for ₹57,000.
3. Realisation expenses of ₹5,000 were paid by the firm.
4. An unrecorded asset was sold for ₹8,000.

Prepare the Realisation Account and calculate the profit or loss on realisation to be distributed among the partners.

Sample Paper 2

ACCOUNTANCY — CLASS XII

General instructions

1. All 33 questions are compulsory.
2. Section A contains 20 objective-type questions of 1 mark each.
3. Section B contains 2 questions of 3 marks each.
4. Section C contains 6 questions of 4 marks each.
5. Section D contains 5 questions of 6 marks each.
6. All workings should be shown clearly.
7. Internal choices, wherever provided, should be attempted as directed.
8. All amounts are in Indian rupees unless otherwise stated.

Section A — Objective-type questions

20 × 1 = 20 marks

Q1. In the absence of a partnership deed, profits and losses are shared by partners:

(a) In the capital ratio (b) Equally (c) In the ratio of drawings (d) In the ratio of interest on capital

Q2. A and B share profits in the ratio of 3:2. C is admitted for $\frac{1}{5}$ share, which he acquires entirely from A. The new profit-sharing ratio is:

(a) 2:2:1 (b) 12:10:5 (c) 2:3:1 (d) 3:1:1

Q3. Average profit of a firm is ₹80,000. Capital employed is ₹5,00,000 and the normal rate of return is 10%. Goodwill calculated by the super-profit method at three years' purchase will be:

(a) ₹2,40,000 (b) ₹1,50,000 (c) ₹90,000 (d) ₹80,000

Q4. At the time of retirement of a partner, the gain arising from a decrease in an unrecorded liability is credited to:

(a) Revaluation Account (b) Realisation Account (c) Profit and Loss Appropriation Account (d) Retiring Partner's Loan Account directly

Q5. A and B share profits in the ratio of 3:2. C is admitted for $\frac{1}{4}$ share, which is acquired equally from A and B. The sacrificing ratio is:

(a) 3:2 (b) 1:1 (c) 2:1 (d) 5:3

Q6. On dissolution, when a partner takes over an asset at an agreed value, the amount is debited to:

(a) Partner's Capital Account (b) Realisation Account (c) Cash Account (d) Bank Account

Q7. A and B share profits in the ratio of 3:2. C is guaranteed a minimum profit of ₹25,000 by A alone. C's actual share of profit is ₹18,000. The amount of deficiency borne by A is:

(a) ₹25,000 (b) ₹7,000 (c) ₹18,000 (d) ₹11,000

Q8. Interest on a partner's capital is treated as an appropriation of profit when:

- (a) The partnership deed provides for it (b) The firm has a bank overdraft (c) The partner makes drawings
(d) The firm is dissolved

Q9. The maximum discount at which forfeited shares can be reissued is limited to:

- (a) The amount called up on the shares (b) The amount originally received as premium (c) The amount standing to the credit of Share Forfeiture Account for those shares (d) The authorised share capital

Q10. A company issued 2,000 shares of ₹10 each at a premium of ₹3 per share. The Securities Premium Account will be credited by:

- (a) ₹20,000 (b) ₹6,000 (c) ₹26,000 (d) ₹3,000

Q11. When debentures are issued at a discount and redeemable at a premium, the company incurs:

- (a) Only capital profit (b) Only revenue profit (c) A loss on issue of debentures (d) No loss

Q12. A company issues 1,000 debentures of ₹100 each carrying interest at 12% per annum. Annual interest is:

- (a) ₹1,200 (b) ₹12,000 (c) ₹10,000 (d) ₹1,00,000

Q13. Which of the following is a feature of a partnership firm?

- (a) Separate legal entity distinct from its partners in the same manner as a company (b) Mutual agency among partners (c) Perpetual succession in every circumstance (d) Capital divided into transferable shares

Q14. A company has authorised capital of ₹10,00,000, divided into equity shares of ₹10 each. The number of authorised shares is:

- (a) 1,000 (b) 10,000 (c) 1,00,000 (d) 10,00,000

Q15. Assertion–Reason

Assertion (A): A company may issue shares at a premium.

Reason (R): The amount received as premium is credited to Securities Premium Account and can be used only for purposes permitted by law.

Choose the correct option:

- (a) Both A and R are true, and R correctly explains A. (b) Both A and R are true, but R does not correctly explain A. (c) A is true, but R is false. (d) A is false, but R is true.

Q16. A company acquires assets worth ₹7,00,000 and liabilities of ₹2,00,000 for a purchase consideration of ₹4,50,000. The result is:

- (a) Goodwill ₹50,000 (b) Capital Reserve ₹50,000 (c) Goodwill ₹1,50,000 (d) Capital Reserve ₹1,50,000

Questions 17–20 are based on the following case.

Maple Ltd. issued 10,000 equity shares of ₹10 each at a premium of ₹2 per share. The amount was payable as ₹3 on application, ₹5 on allotment (including the full premium) and ₹4 on first and final call. All shares were subscribed. A shareholder holding 400 shares failed to pay the call money. All other amounts were received.

Q17. The total amount due on application was:

- (a) ₹30,000 (b) ₹20,000 (c) ₹40,000 (d) ₹10,000

Q18. The amount due on allotment was:

(a) ₹30,000 (b) ₹50,000 (c) ₹20,000 (d) ₹40,000

Q19. The amount of call money not received was:

(a) ₹1,200 (b) ₹1,600 (c) ₹2,000 (d) ₹4,000

Q20. The amount received on the first and final call was:

(a) ₹40,000 (b) ₹38,400 (c) ₹36,000 (d) ₹39,600

Section B — Short-answer questions

$2 \times 3 = 6$ marks

Q21. P and Q are partners sharing profits in the ratio of 3:2. Their capitals are ₹2,00,000 and ₹1,00,000 respectively. Interest on capital is allowed at 10% per annum. The firm incurred a loss of ₹15,000 before charging interest on capital.

Calculate the interest on capital to be allowed to each partner, assuming the partnership deed provides that interest on capital is payable only out of profits.

Q22. Zenith Ltd. issued 2,000, 10% debentures of ₹100 each at a discount of 5%, redeemable at a premium of 10%.

Pass the journal entry for the issue of debentures, assuming the full amount is received in cash.

Section C — Short-answer questions

$6 \times 4 = 24$ marks

Q23. A, B and C share profits in the ratio of 4:3:2. Their capitals are ₹2,00,000, ₹1,50,000 and ₹1,00,000 respectively. The partnership deed provides for interest on capital at 8% per annum and a salary of ₹18,000 per annum to B. The firm earned a net profit of ₹1,20,000 before appropriations.

Calculate the interest on capital, salary and the balance of profit available for distribution. Distribute the balance in the profit-sharing ratio.

Q24. A and B share profits in the ratio of 3:2. They admit C for a $\frac{1}{4}$ share in profits, acquired equally from A and B. The goodwill of the firm is valued at ₹80,000, and C brings his share of goodwill in cash.

Calculate the new profit-sharing ratio, sacrificing ratio and the amount of goodwill credited to A and B.

Q25. A company forfeited 1,000 equity shares of ₹10 each, issued at par, on which ₹8 per share had been called and ₹6 per share had been received. Out of these, 800 shares were reissued at ₹9 per share as fully paid.

Pass the journal entries for forfeiture and reissue and calculate the amount transferred to Capital Reserve.

Q26. A Ltd. took over the business of B Ltd. The assets taken over were valued at ₹9,00,000 and liabilities at ₹3,00,000. The purchase consideration was ₹5,50,000, discharged by issuing equity shares of ₹10 each at a premium of 10%.

Calculate the net assets acquired, goodwill or capital reserve, and the number of shares issued.

Q27. A, B and C are partners sharing profits in the ratio of 2:2:1. B retires, and A and C decide to share future profits in the ratio of 3:2. Goodwill of the firm is valued at ₹1,00,000.

Calculate the gaining ratio and the amount of goodwill to be adjusted through the partners' capital accounts.

Q28. A company issued 4,000, 12% debentures of ₹100 each at a premium of 5%, redeemable at a premium of 10%.

Calculate:

(a) Nominal value of debentures. (b) Amount received on issue. (c) Total loss on issue, including the redemption premium. (d) Annual interest payable on debentures.

Section D — Long-answer questions

5 × 6 = 30 marks

Q29. A, B and C are partners sharing profits and losses in the ratio of 3:2:1. Their Balance Sheet as at 31 March 2026 was as follows:

Liabilities	Amount (₹)	Assets	Amount (₹)
Creditors	50,000	Cash	30,000
General Reserve	30,000	Debtors	40,000
A's Capital	90,000	Stock	50,000
B's Capital	70,000	Machinery	80,000
C's Capital	50,000	Building	90,000
Total	2,90,000	Total	2,90,000

They admit D for a 1/5 share in profits on the following terms:

1. D brings ₹50,000 as capital and ₹20,000 as premium for goodwill.
2. Building is appreciated by ₹10,000.
3. Machinery is depreciated by 10%.
4. Stock is revalued at ₹45,000.
5. An unrecorded liability of ₹5,000 is recognised.
6. General Reserve is distributed among the old partners.

Prepare the Revaluation Account and Partners' Capital Accounts after all adjustments.

Q30. P, Q and R are partners sharing profits in the ratio of 3:2:1. R retires on 31 March 2026. Their capitals on that date are:

- P: ₹1,50,000
- Q: ₹1,00,000
- R: ₹80,000

Other information:

- General Reserve: ₹30,000

- Goodwill of the firm: ₹90,000
- Land appreciates by ₹20,000.
- Stock is reduced by ₹6,000.
- A provision of ₹4,000 is made for an unrecorded liability.

P and Q decide to share future profits in the ratio of 3:2. R's amount due is transferred to his Loan Account.

Prepare the Revaluation Account and Partners' Capital Accounts and determine the amount transferred to R's Loan Account.

Q31. A company issued 20,000 equity shares of ₹10 each at a premium of ₹2 per share. The amount was payable as follows:

- Application: ₹3 per share
- Allotment: ₹5 per share, including the full premium
- First and final call: ₹4 per share

All shares were subscribed. A shareholder holding 1,000 shares failed to pay allotment and call money. The company forfeited these shares after the call became due.

Pass the necessary journal entries for:

(a) Receipt of application money. (b) Allotment and receipt of allotment money. (c) First and final call. (d) Forfeiture of shares.

Q32. A company issued 6,000, 10% debentures of ₹100 each at a discount of 5%, redeemable at a premium of 5%. The entire issue was subscribed and the money was received in full.

Pass the journal entry for the issue of debentures and calculate:

(a) Nominal value of debentures. (b) Net proceeds received. (c) Loss on issue of debentures. (d) Annual debenture interest. (e) Total amount payable on redemption.

Q33. X, Y and Z are partners sharing profits and losses in the ratio of 3:2:1. They decide to dissolve the firm. On the date of dissolution, the following balances appear in their books:

Particulars	Amount (₹)
Sundry assets, excluding cash	2,40,000
Creditors	70,000
X's Capital	90,000
Y's Capital	60,000
Z's Capital	40,000
Cash at bank	20,000

The following transactions took place:

1. Assets realised ₹2,00,000.

2. Creditors were paid ₹66,000 in full settlement.
3. Realisation expenses of ₹6,000 were paid by the firm.
4. An unrecorded asset was sold for ₹10,000.
5. Z took over a machine at an agreed value of ₹15,000. The machine was included in the assets transferred to the Realisation Account.

Prepare the Realisation Account and calculate the profit or loss on realisation to be distributed among the partners.

CLASS XII BUSINESS STUDIES

60 Important Six-Mark Questions – Board Examination Practice

CHAPTER 1 – NATURE AND SIGNIFICANCE OF MANAGEMENT

- Q1.** Explain any six characteristics of management.
- Q2.** Explain the three objectives of management.
- Q3.** Explain any six points highlighting the importance of management.
- Q4.** Explain the three levels of management and state the functions performed by each level.
- Q5.** Explain the meaning of coordination and discuss any five characteristics of coordination.
- Q6.** “Coordination is the essence of management.” Explain the statement.
-

CHAPTER 2 – PRINCIPLES OF MANAGEMENT

- Q7.** Explain any six principles of management given by Henri Fayol.
- Q8.** Explain the following principles of management given by Fayol:
- (a) Unity of Command
 - (b) Unity of Direction
 - (c) Discipline
 - (d) Order
 - (e) Equity
 - (f) Esprit de Corps.
- Q9.** Explain any six techniques of Scientific Management given by F.W. Taylor.
- Q10.** Explain the following techniques of Scientific Management:
- (a) Functional Foremanship
 - (b) Standardisation and Simplification of Work
 - (c) Method Study
 - (d) Motion Study
 - (e) Time Study
 - (f) Differential Piece Wage System.
- Q11.** Explain any six principles of management which help in increasing organisational efficiency.
- Q12.** Differentiate between the principles of Fayol and Taylor on any six bases.
- Q13.** Explain the principle of “Division of Work”, “Authority and Responsibility” and “Unity of Command” as given by Henri Fayol.
- Q14.** Explain how the techniques of Scientific Management help in improving the efficiency of workers and the organisation.

CHAPTER 3 – BUSINESS ENVIRONMENT

- Q15.** Explain any six features of business environment.

Q16. Explain the importance of understanding business environment to a business enterprise.

Q17. Explain the different dimensions of business environment.

Q18. Explain how understanding of business environment helps an organisation in:

- (a) identifying opportunities and getting first mover advantage,
 - (b) identifying threats and early warning signals,
 - (c) tapping useful resources,
 - (d) coping with rapid changes,
 - (e) assisting in planning and policy formulation, and
 - (f) improving performance.
-

CHAPTER 4 – PLANNING

Q19. Explain any six features of planning.

Q20. Explain the importance of planning in the management process.

Q21. Explain any six limitations of planning.

Q22. Explain the steps involved in the planning process.

Q23. Explain the different types of plans used in an organisation.

Q24. Distinguish between single-use plans and standing plans with suitable examples.

CHAPTER 5 – ORGANISING

Q25. Explain the importance of organising.

Q26. Explain the steps involved in the process of organising.

Q27. Explain the meaning and importance of delegation of authority.

Q28. Explain the three elements of delegation of authority.

Q29. Explain the importance of decentralisation in an organisation.

Q30. Distinguish between delegation and decentralisation on any six bases.

CHAPTER 6 – STAFFING

Q31. Explain the importance of staffing in an organisation.

Q32. Explain the steps involved in the staffing process.

Q33. Explain the various sources of recruitment.

Q34. Explain any six methods of external recruitment.

Q35. Explain the steps involved in the selection process.

Q36. Explain the importance of training and development of employees.

CHAPTER 7 – DIRECTING

Q37. Explain the importance of directing in an organisation.

Q38. Explain the different elements of directing.

Q39. Explain any six measures which can be used by a manager to motivate employees.

Q40. Explain Maslow's Need Hierarchy Theory of motivation.

Q41. Explain the meaning and importance of leadership.

Q42. Explain the different styles of leadership.

Q43. Explain the meaning, importance and elements of communication.

Q44. Explain any six barriers to effective communication and suggest suitable measures to overcome them.

CHAPTER 8 – CONTROLLING

Q45. Explain the importance of controlling in an organisation.

Q46. Explain the steps involved in the process of controlling.

Q47. Explain the relationship between planning and controlling.

Q48. Explain any six advantages of controlling.

Q49. Explain the meaning of controlling and discuss its importance in achieving organisational objectives.

Q50. Explain the various techniques of controlling used by management.

10 ADDITIONAL HIGH-FREQUENCY QUESTIONS

To make the set complete 60 questions

These additional questions cover themes that have been repeatedly tested in different forms and are useful for final board-examination revision.

Principles of Management

Q51. Explain the importance of principles of management.

Q52. Explain any six points which highlight the significance of Scientific Management.

Planning

Q53. Explain the relationship between planning and decision-making.

Organising

Q54. Explain the meaning of organisational structure and discuss the features of functional structure.

Q55. Explain the features and advantages of divisional structure.

Staffing

Q56. Distinguish between recruitment and selection on any six bases.

Q57. Explain the different types of training methods used for employees.

Directing

Q58. Explain the financial and non-financial incentives used for motivating employees.

Q59. Explain the process of communication in an organisation and state the importance of effective communication.

Controlling

Q60. Explain how controlling helps in achieving organisational goals and improving the efficiency of an organisation.

MOST IMPORTANT AREAS FOR FINAL REVISION

If time is limited, students should give special attention to these repeatedly tested areas:

1. **Functions, objectives and importance of management**
2. **Coordination – characteristics and importance**
3. **Fayol's principles of management**
4. **Taylor's Scientific Management techniques**
5. **Fayol vs Taylor**
6. **Features and importance of business environment**
7. **Dimensions of business environment**
8. **Features, importance and limitations of planning**
9. **Steps of planning**
10. **Types of plans**
11. **Steps in organising**
12. **Delegation – elements and importance**
13. **Delegation vs decentralisation**
14. **Staffing process**
15. **Sources of recruitment**
16. **Selection process**
17. **Training and development**
18. **Elements and importance of directing**
19. **Maslow's Need Hierarchy Theory**
20. **Leadership styles**
21. **Communication and its barriers**

- 22. **Motivation and incentives**
- 23. **Steps of controlling**
- 24. **Importance of controlling**
- 25. **Relationship between planning and controlling**

PART-II

CLASS XII BUSINESS STUDIES

40 IMPORTANT SIX-MARK QUESTIONS

Financial Management | Financial Markets | Marketing Management | Consumer Protection

Question Type: Direct questions

Marks: 6 marks each

Focus: Previous-year board examination themes and frequently repeated concepts

CHAPTER 9 – FINANCIAL MANAGEMENT

10 Important Questions

- Q1.** Explain the three major financial decisions taken by a finance manager.
- Q2.** Explain any six factors affecting the investment decision of a company.
- Q3.** Explain any six factors affecting the financing decision of a company.
- Q4.** Explain any six factors affecting the choice of capital structure of a company.
- Q5.** Explain any six factors affecting the dividend decision of a company.
- Q6.** Explain any six factors affecting the working capital requirements of a business.
- Q7.** Explain any six factors affecting the fixed capital requirements of a business.
- Q8.** Explain the meaning of financial management and state its objectives.
- Q9.** Explain the concept of capital structure and state any five factors affecting the choice of capital structure.
- Q10.** Explain the relationship between investment decision, financing decision and dividend decision in financial management.

☆ High-priority recurring areas:

- Financing decision and its factors
- Capital structure and its factors
- Working capital requirements
- Fixed capital requirements
- Dividend decision

- Three financial decisions

Questions on capital structure and working-capital factors have appeared repeatedly in recent PYQ compilations, including six-mark formats.

CHAPTER 10 – FINANCIAL MARKETS

10 Important Questions

- Q11.** Explain any six functions of financial markets.
- Q12.** Distinguish between the money market and capital market on any six bases.
- Q13.** Distinguish between the primary market and secondary market on any six bases.
- Q14.** Explain any six instruments of the money market.
- Q15.** Explain any six features of the capital market.
- Q16.** Explain any six functions of a stock exchange.
- Q17.** Explain any six functions performed by the Securities and Exchange Board of India (SEBI).
- Q18.** Explain the protective, regulatory and developmental functions of SEBI.
- Q19.** Explain the importance of financial markets in the economic development of a country.
- Q20.** Distinguish between the money market and capital market and explain the instruments traded in each market.

☆ High-priority recurring areas:

- Primary Market vs Secondary Market
- Money Market vs Capital Market
- Functions of Stock Exchange
- Functions of SEBI
- Protective, regulatory and developmental functions of SEBI
- Money-market instruments

The distinction between **primary and secondary markets** and between **money and capital markets** has been repeatedly tested in CBSE material/PYQ collections.

CHAPTER 11 – MARKETING MANAGEMENT

10 Important Questions

- Q21.** Explain the meaning and functions of marketing.
- Q22.** Explain any six features of a good brand name.
- Q23.** Explain the concept of marketing mix and discuss its four elements.
- Q24.** Explain any six factors affecting the price determination of a product.

Q25. Explain the various methods of pricing a product.

Q26. Explain any six functions of packaging.

Q27. Explain the various functions of labelling.

Q28. Explain the various components of the promotion mix.

Q29. Explain the advantages and limitations of advertising as a promotional tool.

Q30. Explain the meaning of personal selling and discuss the qualities of a good salesperson.

☆ **High-priority recurring areas:**

- Marketing mix – **4 Ps**
- Factors affecting price
- Promotion mix
- Advertising
- Personal selling
- Packaging
- Labelling
- Branding

The **4 Ps of marketing mix** and factors affecting price are among the recurring six-mark themes in CBSE-oriented question sets.

CHAPTER 12 – CONSUMER PROTECTION

10 Important Questions

Q31. Explain any six importance of consumer protection from the point of view of consumers.

Q32. Explain any six importance of consumer protection from the point of view of business.

Q33. Explain the rights of consumers under the Consumer Protection Act, 2019.

Q34. Explain any six responsibilities of consumers.

Q35. Explain the meaning of consumer protection and discuss the role of consumer organisations and NGOs in protecting consumers.

Q36. Explain the various reliefs available to a consumer under the Consumer Protection Act, 2019.

Q37. Explain the three-tier consumer dispute redressal machinery established under the Consumer Protection Act, 2019.

Q38. Explain the role of consumer organisations and NGOs in protecting the interests of consumers.

Q39. Explain the right to safety, right to be informed, right to choose, right to be heard, right to seek redressal and right to consumer education.

Q40. Explain any six ways through which a consumer can protect himself/herself against exploitation in the market.

☆ **High-priority recurring areas:**

- Consumer rights
- Consumer responsibilities
- Importance of consumer protection
- Reliefs available to consumers
- Consumer dispute redressal machinery
- Role of consumer organisations and NGOs

Consumer rights, responsibilities and reliefs continue to feature prominently in CBSE question material; recent CBSE-linked material includes six-mark questions on consumer rights and reliefs.

 TOP 20 QUESTIONS FOR LAST-MINUTE REVISION

If students have limited time, these 20 questions should receive **special attention**:

Financial Management

1. Explain the three major financial decisions.
2. Explain factors affecting financing decisions.
3. Explain factors affecting choice of capital structure.
4. Explain factors affecting working capital requirements.
5. Explain factors affecting dividend decisions.

Financial Markets

6. Differentiate between Primary Market and Secondary Market.
7. Differentiate between Money Market and Capital Market.
8. Explain functions of SEBI.
9. Explain protective, regulatory and developmental functions of SEBI.
10. Explain functions of stock exchange.

Marketing Management

11. Explain the four elements of Marketing Mix.
12. Explain factors affecting price determination.
13. Explain components of Promotion Mix.
14. Explain functions of packaging.
15. Explain functions of labelling.

Consumer Protection

16. Explain the rights of consumers.
17. Explain the responsibilities of consumers.
18. Explain the importance of consumer protection from the point of view of business.
19. Explain the reliefs available to consumers.
20. Explain the role of consumer organisations and NGOs.

1. Write the two-fold motive behind the systematic de-industrialization affected by the British in pre-independence India?
2. Write the reasons of ruining of traditional handicraft industries under the British rule.
3. What were the objectives of the British to improve the infrastructure in India?
4. Highlight the features of India's pre-independence occupational structure.
5. Give a quantitative appraisal of India's demographic profile during the colonial period.
6. Discuss the positive contributions made by the British in India.
7. Briefly describe the state of infrastructural facilities during the British period.
8. Describe the state of India "s occupational structure during British period.
9. Why is 1921 called the "Year of Great Divide "in context of India "s population history?
10. Mention some of the positive effects of British rule in India.
11. Zamindari system was introduced by the British to collect rent from the peasants. How did it become an instrument of exploitation of the peasants?
12. How did discriminatory tariff policy help in destroying Indian Industries?

1. Who is the chairman of the planning commission in India?
2. What was the main idea behind abolition of intermediaries?
3. What is marketable surplus?
4. Name the type of economy adopted in India.
5. What is import -substitution?
6. What is market economy?
7. What is centrally planned economy?
8. What is mixed economy?
9. What is inward looking trade strategy?

10. What is Green Revolution? Why was it implemented in India?
11. Why was it necessary for a country like India to follow self-reliance as a planning objective?
12. Explain 'growth with equity' as a planning objective.
13. Explain how import substitution can protect domestic territory.
14. Common Goals Of Five Year Plans

15. Why were the land reforms not implemented successfully ?
16. Mention the features of IPR 1956.
17. What role does the agriculture sector play in the Indian economy?
18. How did green revolution benefit and harm the farmers?
19. Critically appraise the impact of industrial development in 1950-90.
20. How did India perform in foreign trade post-independence ?
21. An equally strong case can be made in favor of and against agriculture subsidies .Do you agree? Give reasons for your answer.

Class XII	
• Micro and Small Scale Industries	• Food Supply Channel in India
• Contemporary Employment situation in India	• Disinvestment policy of the government
• Goods and Services Tax Act and its Impact on GDP	• Health Expenditure (of any state)
• Human Development Index	• Inclusive Growth Strategy
• Self-help group	• Trends in Credit availability in India
• Monetary Policy Committee and its functions	• Role of RBI in Control of Credit
• Government Budget & its Components	• Trends in budgetary condition of India
• Exchange Rate determination – Methods and Techniques	• Currency War – reasons and repercussions
• Livestock – Backbone of Rural India	• Alternate fuel – types and importance
• Sarva Shiksha Abhiyan – Cost Ratio Benefits	• Golden Quadrilateral- Cost ratio benefit
• Minimum Support Prices	• Relation between Stock Price Index and Economic Health of a Nation
• Waste Management in India – Need of the hour	• Minimum Wage Rate – Approach and Application
• Digital India- Step towards the future	• Rain Water Harvesting – A solution to water crisis
• Vertical Farming – An alternate way	• Silk Route- Revival of the past
• Make in India – The way ahead	• Bumper Production- Boon or Bane for the farmer
• Rise of Concrete Jungle- Trend Analysis	• Organic Farming – Back to the Nature
• <i>Aatmanirbhar</i> Bharat	• e-Rupee (e- ₹)
• Sri Lanka's Economic Crisis	• Sustainable Development Goals (SDG's)
• Environmental Crisis	• Comparative Study of Economies (Maximum three economies)
• New Education Policy (NEP) 2020: A Promise for a New Education System	• G-20: Inclusive and Action Oriented
• Amrit Kaal: Empowered and Inclusive Economy	• Cashless Economy
• Any other newspaper article and its evaluation on basis of economic principles	• Any other topic

पीएम श्री केंद्रीय विद्यालय क्रमांक 1 संबलपुर

शरदकालीन अवकाश - गृह कार्य

कक्षा - 12वीं

विषय - हिंदी

प्रश्न 1 अभिव्यक्ति और माध्यम पुस्तक के सभी पाठों में से 100 लघु उत्तरात्मक प्रश्न बनाकर उनके उत्तर लिखिए ।

प्रश्न 2 कोई दो कहानियों का नाट्य रूपांतरण कर लिखिए।

प्रश्न 3 कोई दो रेडियो नाटक बनाकर लिखिए।

प्रश्न 4 अलग-अलग विषयों पर 1000 शब्दों में परियोजना कार्य तैयार कीजिए।

नोट – परियोजना कार्य A4 साइज पेपर में लगभग 20 पेज में कीजिए

जैसे -हरिवंश राय बच्चन, महादेवी वर्मा, जैनेंद्र कुमार ,धर्मवीर भारती, फणीश्वर नाथ रेणु आदि लेखक और कवियों से संबंधित कार्य कीजिए ।

CLASS XII – INFORMATICS PRACTICES
HOLIDAY HOMEWORK
CBSE PROJECT WORK: DATA ANALYSIS AND IT APPLICATION

Project Task

Develop a tangible and useful IT application that addresses a real-world problem. You may identify a problem by exploring your surroundings, such as a shop, business, community, school, or another local organization. Where possible, enquire how data are generated, stored, and managed.

Project Requirements

- Use data stored in a CSV file or database file for analysis.
- Use Python and suitable libraries to analyze the data and generate appropriate charts for visualization.
- You may use Python libraries of your choice to develop an application for your school or for social good.
- The project may be completed individually or in a group of two to three students.
- Start the project during the holiday and continue developing it progressively; the project should begin at least six months before the submission deadline.

Suggested Project Ideas

- School data analysis: attendance, library usage, student participation, or school inventory.
- Local business analysis: sales, stock, expenses, or customer feedback using sample or permission-based data.
- Community-focused application: waste management, water-use records, or community service tracking.
- Social-good application: a simple tool that organizes information or supports users in the school or community.

Holiday Homework Submission

- Project title and name(s) of student(s).
- Problem statement and intended users.
- Description of the data source and the fields/columns in the CSV or database file.
- Objectives and proposed features of the application.
- Initial Python program for reading and analyzing the data.
- At least two suitable charts or visualizations, with a brief interpretation of the results.
- A short progress note describing what has been completed and what remains to be done.

Important Guidelines

- Choose a practical, useful, and manageable problem. Additional learning of Python libraries is encouraged.
- Do not copy another learner's project or present copied code as your own.
- Respect copyright. Suitably reference all external resources, including images, datasets, libraries, and code.
- Obtain permission before collecting or using private data from individuals, shops, businesses, or organizations.
- Every group member must understand the project and contribute to its development.