केन्द्रीय विद्यालय संगठन , बेंगलूरु संभाग

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प्रथम प्री-बोर्ड परीक्षा 2024-25

FIRST PRE BOARD EXAMINATION—2024-25

CLASS: XII MAX.MARKS:70
SUBJECT: BIOLOGY TIME: 3 HOURS

General Instructions:

(i) All questions are compulsory.

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

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

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

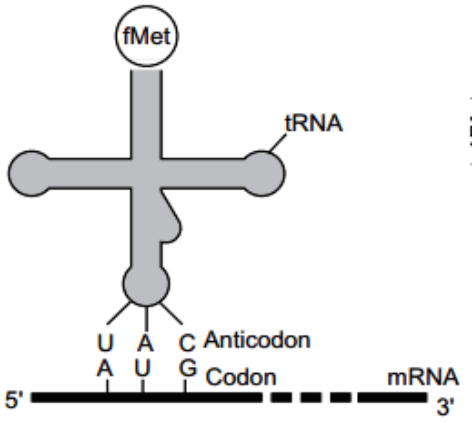
(v) Wherever necessary, neat and properly labeled diagrams should be drawn.

	SECTION-A **Q. No. 1 to 12 are multiple choice questions. Only one of the choices is correct.Select and write the correct choice as well as the answer to these questions**	
1.	b) Chasmogamous flowers have their petals open and are adapted for cross-pollination, whereas cleistogamous flowers remain closed and are adapted for self-pollination.	1
2.	c) Estrogen FSH LH Progesterone	1
3.	b) Expressed Sequence Tags	1
4.	b) Formation of incomplete or fragmented DNA strands on the lagging strand	1
5.	b) 1 pink : 1 white	1
6.	a) Bird populations develop different beak shapes to exploit various food sources on the island, depicting divergent evolution.	1
7.	b) All their sons will be colour blind.	1
8.	b) (a) and (d)	1

9.	c)Wuchereria malayi- Ascariasis	1
10.	a) Primary treatment- sedimentation	1
11.	c) 4	1
12.	b)Hydrogen bond Glycosidic bond Phospho ester Deoxyribose sugar	1
13.	C. **A is true but R is false**	1
14.	**A. Both A and R are true and R is the correct explanation of A**	1
15.	**C.A is true but R is false.**	1
16.	**D. A is False but R is true**.	1
	SECTION-B	
17.	Cu ions released suppress sperm motility and the fertilising capacity of sperms Hormone releasing IUDs make the uterus unsuitable for implantation and cervix hostile. ½ each	2
18.	DNA negatively charged molecules, move towards the anode under an electric field through agarose gel medium. ½ To determine the size of the DNA fragments, the student compares the distance migrated by the sample bands. The bands which have moved farther have low molecular size. 1 It is stained with ethidium bromide allows visualization of the separated bands under UV light making the bands visible. ½	2
19.	A) heroin B) cardio vascular system C) Erythroxylon cocoa D)stimulates central nervous system (½ each) OR a) Metastasis. Some of the cells leave the original position and travel by blood to cause tumor (1) b)Several genes called cellular oncogenes or proto-oncogenes have been identified in normal cells which, when activated under certain conditions, could lead to oncogenic transformation of cells.(1)	2
20.	(I) curve A –unlimited resources B- limited resources ½ each dN /dt=rN (K-N/K) ½	2

ii) K represents the carrying capacity, which is the maximum population size that a given environment can support indefinitely. ½

21. The tRNA reads the code on one hand and on the other hand would bind to specific amino acids. 1 — 2



SECTION-C

22. A- Mice die B-Mice alive C-mice alive D- mice die — 3
He concluded that the R strain bacteria have been transformed by the heat killed S strain bacteria. It had enabled R strain to synthsise a smooth polysaccharide coat making it virulent. This must be due to transfer of genetic material.

23. — 3

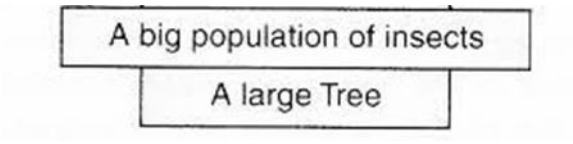
SPERMATOGENESIS	OOGENESIS
Occurs in testsis	Occurs in ovary
Starts at puberty	States at foetal stage
Produces four spermatids	Produces one ootid
No polar bodies formed due to equal division	Polar bodies formes due to unequal division
Continues life long	Terminates at menapause.
Spermatid is transformed into motile sperm	Ootid remains as such and is non motile

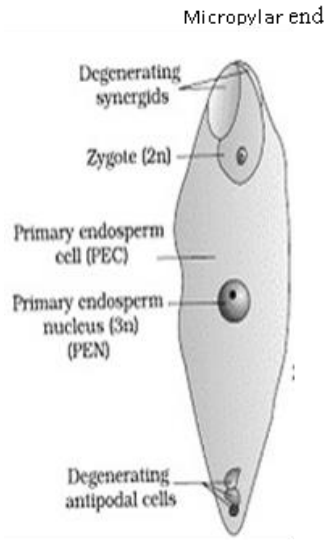
OR

a) ICSI- Technique in which the sperm is directly injected into the cytoplasm of the ovum to form a zygote in the laboratory conditions 1

GIFT- Transfer of an ovum collected from a donor into the fallopian tube of another female for fertilization and further development 1

b) These restrictions are mainly to check the indiscriminate and illegal female foeticide 1

24.	(i) Antitoxin / / Prepared antibodies. ½ Whenever quick immune response is required, we need to directly inject preformed antibodies / Antitoxins 1 (iii)Passive immunity is provided. ½ Colostrum 1	3
25.	a) Homologous organs. They exhibit divergent evolution (1) The forelimbs of the organisms perform different functions but structurally they are similar. They are made of similar bones- humerus, radius, ulna, metacarpels, carpels and phalanges.(1) b)Thorn in Bougainvillea and tendril in Cucurbit (1)(Any other correct example)	3
26.	a. Meloidegyne incognitia (1) b. RNA i/ RNA interference/ RNA silencing (any one term) It involves silencing of a specific m RNA due to a complementary dsRNA molecule that prevents translation of m-RNA. (1) c. Infection by viruses having RNA genome or mobile genetic elements / transposons (1)	3
27.	 1 b)The limitations of ecological pyramids are 1. It does not consider the same single species operating at two or more trophic levels. 2. It does not accommodate food web. 3. Saprophytes, detritivores and decomposers are not given any place in pyramids, despite their vital role in ecosystem (any two). 2	3
28	The Nile perch introduced into lake Victoria in east Africa led to more than 200 species of cichlid fish in the lake Threat posed to our native species by invasive weed species like carrot grass (Parthenium) , Lantana and water Hyacinth (Eicchornia) . Introduction of the African catfish Clarias gariepinus for aquaculture purpose is posing a threat to the indigenous catfishes in our rivers. Or any other correct answer. 1 each	3
	SECTION-D	
29	a) Reproductive and Child Health Care (RCH) programmes'. 1 b) Decrease in Maternal mortality rate, infant mortality rate, decreased death rate, more birth rate and more people in reproductive phase. (any four) 2 c) Amniocentesis can lead to female foeticide as it detects the sex of the foetus which decreases the gender ratio. So, it has a statutory ban to avoid female foeticide 1 OR Itching, fluid discharge, slight pain ,swelling in the genital region. (any two) 1	4
30	a)Macrophages and T lymphocytes 1 b) HIV is not transmitted through casual contact such as hugging or sharing school supplies. It is	4

	transmitted through specific fluids such as blood, semen, vaginal fluids, and breast milk. 1 OR ELISA c) X- viral RNA , C- Viral DNA , B- reverse transcriptase Its called retrovirus as its genetic material is RNA. ½ each	
	SECTION-E	
31	Fertilization in angiosperm is said to be double fertilization because two types of fusion occur during fertilization a) Syngamy- fusion of one of the male gametes with the ovum to form zygote. 1 b) Triple fusion – other male gamete fuses with the secondary nucleus to form primary endosperm nucleus. 1  a) Micropylar end b) Zygote c) PEN-Primary endosperm nucleus d) Degenerating antipodal cells (Diagram -1, correct labellings-2) OR (i) G-Corpus luteum ½ LH and FSH influences its formation. 1 (ii) Corpus luteum secrets progesterone. ½ It maintains the endometrium. ½ It is essential for implantation of the fertilized ovum and other events of pregnancy. ½ iii) D-secondary follicle E- Graafian follicle. 1 iv) Provides oxygen and nutrients. Removes harmful waste and carbon dioxide Produces hormones. (any two) 1	5
32	a) Earlier insulin was extracted from pancreas of slaughtered cattle or pigs. 1 b) As it was extracted from an animal source, caused some patients to develop allergy or other types	5

of reactions to the foreign protein. 1

c)Eli Lilly an American company prepared two DNA sequences corresponding to A and B, chains of human insulin and introduced them in plasmids of E. coli to produce insulin chains.

Chains A and B were produced separately, extracted and combined by creating disulfide bonds to form human insulin. 2

d)

Pro insulin	Insulin
Immature form	Matured form
Chain A and B are connected by C peptide	Chain A and B are connected by disulphide bond.

1

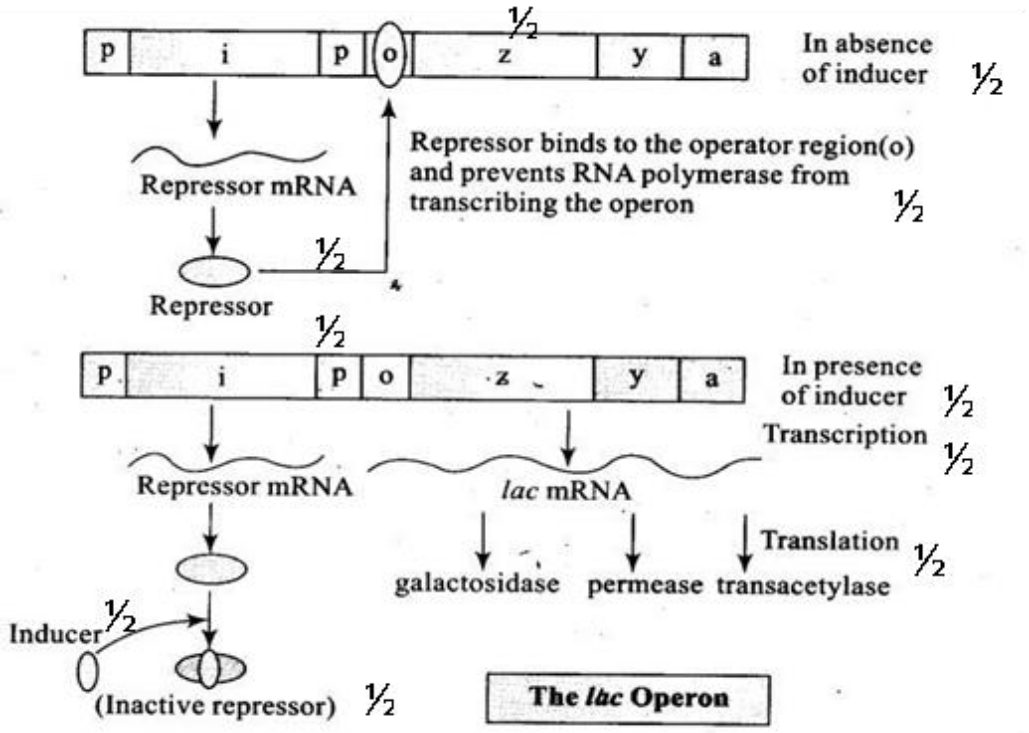
OR

Plant cell is first treated with the enzyme cellulase to digest the cellwall. Then the RNA can be removed by treating with ribonuclease and proteins with protease. Other molecules can be removed by appropriate treatment and DNA is precipitated with chilled ethanol. DNA appears as threat which can be spooled . 3

To introduce alien DNAinto animal cell micro injection is adopted . where recominant DNA is directly injected into the nucleus. 1

In plants , cells are bombarded with high velocity micro particle of gold and tungsten coated with DNA – bolistic or gene gun method 1

33



5

OR

P TTyy X ttYY (1)

GAMETES Ty tY

F1 TtYy Tall yellow (1)

TtYy X TtYy

	TY	Ty	tY	ty
TY	TTYY Tall Yellow	TTYy Tall Yellow	TtYY Tall Yellow	TtYy Tall Yellow
Ty	TTYy Tall Yellow	TTyy Tall green	TtYy Tall yellow	Ttyy Tall green
tY	TtYy Tall Yellow	TtYy Tall Yellow	ttYY short yellow	ttYy short yellow
ty	TtYy Tall Yellow	Ttyy Tall green	ttYy short yellow	Ttyy Short green

(2)

Phenotypic ratio – Tall yellow :tall green :short yellow :short green

9 : 3 : 3 : 1 (1)