



TECHNO INDIA GROUP PUBLIC SCHOOL

MOCK TEST-1 (2025-2026)

CLASS-XII

Subject Code 044

Roll No.

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Candidates must write the code on the title page of the answer-book.

BIOLOGY

Time allowed : 3 hours

Maximum Marks : 70

General Instruction:

- (i) All questions are compulsory.
- (ii) The question paper has five sections and 33 questions.
- (iii) Section-A has 16 questions of 1 mark each; Section-B has 5 questions of 2 marks each; Section-C has 7 questions of 3 marks each; Section-D has 2 case-based questions of 4 marks each; and Section-E has 3 questions of 5 marks each.
- (iv) There is no overall choice. Answer all 33 questions. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- (v) Wherever necessary, neat and properly labeled diagrams should be drawn.



SECTION : A

1.	In which of the following plants are both male and female flowers borne on the same plant and the mode of pollination can be geitonogamy or xenogamy? (A) Maize (B) Papaya (C) Mango (D) Plum	[1]
2.	Self pollination is fully ensured if - (A) the flower is cleistogamous (B) the time of maturity of anther and pistil are different (C) the filament is longer than the style (D) the anther is longer than the filament.	[1]
3.	Acromome of sperm is modified : (A) Mitochondria (B) Golgi complex (C) ER (D) Ribosome	[1]
4.	The Hershey - Chase experiment shows which of the following steps chronologically ? (A) Blending, infection, centrifugation (B) Centrifugation, infection, blending (C) Infection, blending, centrifugation (D) infection, centrifugation, blending	[1]
5.	Which step of transcription is dependent on RNA polymerase? (A) Initiation (B) Elongation (C) Termination (D) All of the above	[1]
6.	Hugo de Vries proposed the mutation theory of organic evolution after his experiments on (A) Garden pea (B) Four o'clock plant (C) Drosophila (D) Evening primrose	[1]
7.	A couple has two daughters. What is the probability of the third child to also be a daughter ? (A) 25% (B) 50% (C) 75% (D) 100%	[1]
8.	Evolutionary convergence is the development of a (A) common set of functions in groups of different ancestry (B) dissimilar set of functions in closely related groups (C) common set of structures in closely related groups (D) dissimilar set of functions in unrelated groups.	[1]
9.	Transplantation of tissues/organs to save certain patients often fails due to rejection of such tissues/organs by the patient, which type of immune response is responsible for such rejection? (A) Auto-immune response (B) Humoral immune response (C) Physiological immune response (D) Cell mediated immune response	
10.	While analysing the DNA of an organism, a total number of 5386 nucleotides were found out of which the proportion of different bases were : Adenine = 29%, Guanine = 17%, Cytosine = 32%, Thymine = 17%. Considering the Chargaff's rule, it can be concluded that : (A) It is a double stranded linear DNA (B) It is a single stranded DNA (C) It is a double stranded circular DNA (D) None of the above	

11.	Two genes 'A' and 'B' are linked. In a dihybrid cross, involving these two genes, the F1 heterozygote is crossed with homozygous recessive parental type (aabb). What would be the ratio of offsprings in the next generation? (A) 1:1:1:1 (B) 9:3:3:1 (C) 3:1 (D) 1:1	
12.	Which acid is produced by <i>Aspergillus niger</i> ? (A) Butyric acid (B) Citric acid (C) Lactic acid (D) Acetic acid	

Assertion and Reason :

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

A: Both A and R are true and R is the correct explanation of A.

B: Both A and R are true and R is not the correct explanation of A.

C: A is true but R is false.

D: A is false but R is true.

13.	Assertion (A): Perisperm is a haploid tissue. Reason (R): Perisperm is the remains of nucellus which surround the embryo in certain seeds. (A) A (B) B (C) C (D) D	[1]
14.	Assertion (A): Wings of birds and bats are different in origin but similar in function. Reason (R): Wings of birds and bats are example of homologous structure. (A) A (B) B (C) C (D) D	[1]
15.	Assertion (A): RNA gets replicated to form viral DNA by the enzyme reverse transcriptase. Reason (R): The viral DNA gets incorporated into the host cell DNA and directs the infected cells to produce viral particles. (A) A (B) B (C) C (D) D	[1]
16.	Assertion (A): To cure SCID, the first clinical gene therapy for ADA was given. Reason (R): Using retroviral vector, the normal gene was delivered into the patient's cells. (A) A (B) B (C) C (D) D	[1]

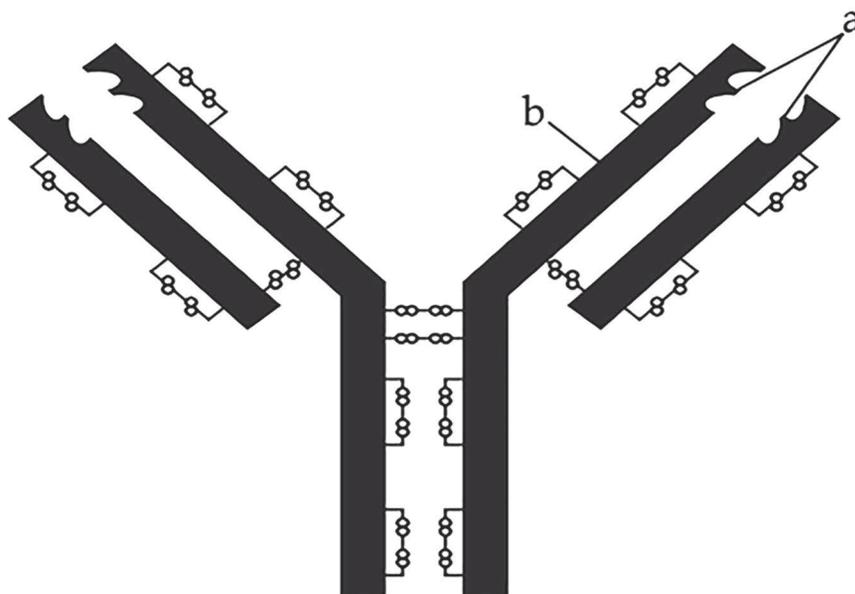
SECTION - B

17.	Attempt either option A or B : A. Explain any two ways by which apomictic seeds get developed. OR, B. Banana is a parthenocarpic fruit whereas oranges show polyembryony. How are they different from each other with respect to seeds?	[2]
18.	'Genes contain the information that is required to express a particular trait? Explain.	[2]
19.	Why is an immunosuppressant administered after an organ transplant ?	[2]
20.	Attempt either option A or B : A. Why does the Bt toxin not kill the bacterium that produces it but kills the insect that ingests it? OR, B. A corn farmer has a perennial problem of corn borer infestation in his crop. Being environmentally conscious, he does not want to spray insecticides. Suggest a solution based on biotechnology.	[2]

21.	<p>Attempt either option A or B :</p> <p>A. State the difference between the first trophic levels of detritus food chain and grazing food chain.</p> <p style="text-align: center;">OR,</p> <p>B. Construct a grazing food chain using the following, with 5 links each : Earthworm, bird, snake, vulture, grass, grasshoppers, frog, decaying plant matter.</p>	[2]
SECTION - C		
22.	<p>State True / False with explanation :</p> <p>(a) Infertility is the inability to produce a viable offspring and is always due to abnormalities or defects in the female partner.</p> <p>(b) Complete lactation is a natural method of contraception.</p> <p>(c) In ET techniques, embryos are always transferred into the uterus</p>	[3]
23.	<p>Study the following flow chart. Name the hormones involved at each stage and state their functions.</p> <p>Hypothalamus - Pituitary → Testes → Sperms.</p>	[3]
24.	<p>How would you find the genotype of a tall pea plant bearing white flowers? Explain with the help of a cross. Name the type of cross you would use.</p>	[3]
25.	<p>Explain the interpretation of Charles Darwin when he observed a variety of small black birds on Galapagos Islands.</p>	[3]
26.	<p>'Microbes play a dual role when used for sewage treatment as they not only help to retrieve usable water but also generate fuel'. Explain.</p>	[3]
27.	<p>Expand ELISA. On what principle is the ELISA test based? List two ways by which an infection can be detected by this test.</p>	[3]
28.	<p>(a) State how the constant internal environment is beneficial to organisms.</p> <p>(b) Explain any one alternative by which organisms can overcome stressful external conditions.</p>	[3]
SECTION - D		
29.	<p>Read the given passage and answer the following questions :</p> <p>A pollen grain is a partially germinated microspore that represents the male gametophyte. The microspores may vary in size, shape and colour, design, etc. from species to species. The pollen grains are generally spherical and measures about 20 to 50 micrometers in diameter.</p> <p>(A) What are the two parts of a mature pollen grain of an angiosperm called?</p> <p>(B) Discuss the nature of flowers which show anemophily.</p> <p>(C) The correct statement with regards to sporopollenin is :</p> <p style="text-align: center;"> <input type="radio"/> (A) It is the most resistant organic material <input type="radio"/> (B) It cannot tolerate strong acids <input type="radio"/> (C) It cannot withstand high temperatures. <input type="radio"/> (D) It can be easily degraded by enzymes. </p> <p style="text-align: center;">Or</p> <p>(D) What is the first step of pollen-pistil interaction?</p>	[4]

30. The figure given below represents a molecule present in the body of a mammal.

[4]



- A. Name the parts labelled a and b in the figure
- B. State the roles of T-lymphocytes and B-lymphocytes in developing immunity.
- C. Write the function of colostrum.
- D. Why is the structure of an antibody molecule represented as H_2L_2 ?

SECTION - E

31. (a) Why does DNA replication occur in small replication forks and not in its entire length?
 (b) Why is DNA replication continuous and discontinuous in a replication fork?
 (c) State the importance of origin of replication in a replication fork.

[5]

OR

- (a) Write the features a biomolecule must fulfill to be able to act as a genetic material.
- (b) Between DNA and RNA, which one is a more stable genetic material and why?

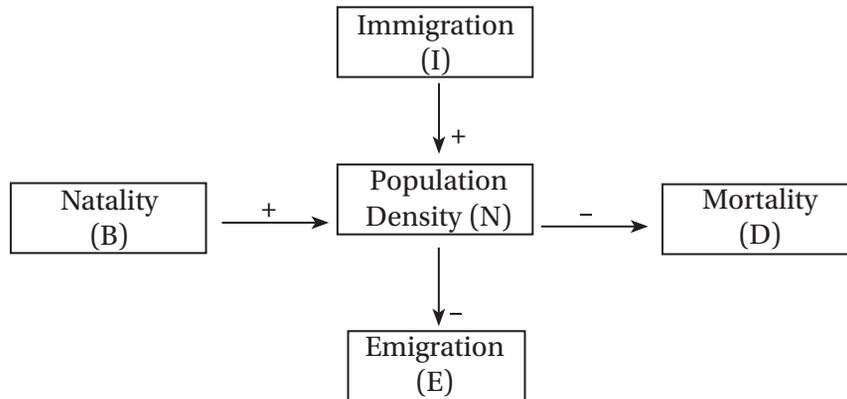
32. (a) A mixture of fragmented DNA was electrophoresed in agarose gel. After staining the gel with ethidium bromide, no bands were observed. What could be the reason?
 (b) Draw a neat labelled -diagram of a stirred tank bioreactor.

[5]

OR

- (a) Give a diagrammatic representation of recombinant DNA technology.
- (b) Before integrating DNA with bacterial plasmid, bacterial cells are treated with divalent cations. Why?

33. (a) study the flow chart given below and complete the equation that follows by identifying 1, 2, 3 and 4. [5]



$$N_{t+1} = N_t + [(1 + 2) - (3 + 4)]$$

- (b) Mention the different ways by which population density of different species can be measured .

Or

Given below is a table depicting population interactions between species A and species B.

Types of interaction	Species	
	A	B
(a)	(-)	(+)
(b)	(+)	(-)

Name the two types of population interactions a and b.

Justify giving three reasons, how the type of interaction (b) is important in an ecological context.