

COMMON PRE BOARD EXAMINATION (2017-18)

Class XII

BIOLOGY

Time-3 hrs
Marks-70

General Instructions :

- (i) *There are 26 questions in all. All questions are compulsory.*
- (ii) *This question paper has five sections : Section A, Section B, Section C, Section D and Section E.*
- (iii) *Section A contains five questions of one mark each, Section B contains five questions of two marks each, Section C contains twelve questions of three marks each, Section D contains one value based question of four marks and Section E contains three questions of five marks each.*
- (iv) *There is no overall choice. However, an internal choice has been provided in one question of two marks, one question of three marks and all the three questions of five marks weightage. You have to attempt only one of the choices in such questions.*
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SECTION A

- 1 What stimulates the pituitary to release the hormone for parturition? Name the hormone. 1
- 2 Are flippers of penguins and dolphins homologous or analogous organs? What type of evolution does it show? 1
- 3 How is the presence of cyanobacteria in the paddy fields beneficial to crops? 1
- 4 Name the special type of polymerase used in PCR and state its importance. 1
- 5 Bt toxin does not kill the bacteria that produce it but kills the insect that ingests it. Why? 1

SECTION B

- 6 List the post fertilization events in angiosperms. 2
- 7 Why does a doctor give tetanus antitoxin and not a vaccine to a child injured in an accident with a bleeding wound? 2

OR

Draw the structure of an antibody molecule. What type of immunity is brought about by antibodies?

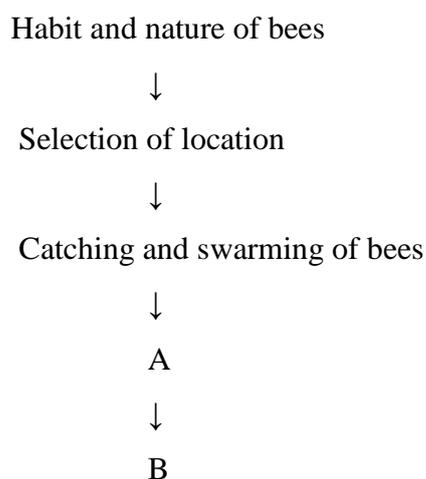
- 8 What is GMO? Give examples of any 2 GMOs and their application. 2
- 9 What are ecological pyramids? What are the short comings of ecological pyramids in the study of ecosystem? 2
- 10 What is stability in a community? How did David Tilman show this experimentally? 2

SECTION C

- 11 a) Where does spermatogenesis occur in testes? Describe the process with a figure. 3
b) Trace the path of spermatozoan from testes upto the ejaculatory duct.
- 12 What is ART? How is it useful to human? How are ZIFT and GIFT different from IUT? 3
- 13 A normal woman whose father is colour blind marries a normal visioned man. What would be the probability of her sons and daughters to be colour blind? Explain with a cross. 3
- 14 What is the principle of DNA finger printing? List out the steps involved in the process. 3

OR

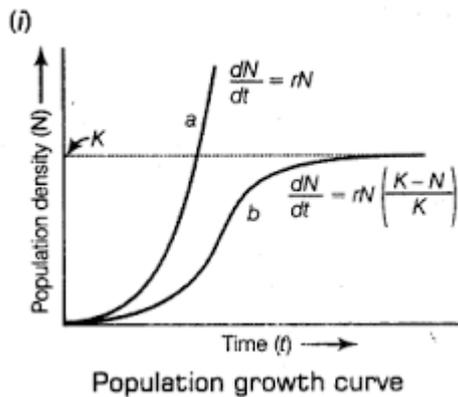
- What is HGP? What are its goals?
- 15 a) State the arrangement of different genes that in bacteria is referred to as operon. 3
b) Give a schematic representation of lac operon in a switched- on state.
c) What is the role of lactose in the above operon?
- 16 a) Give the set up used by Urey and Miller for their experiment. 3
b) Write the names of the different gases and the conditions set up for the expt.
c) What was the conclusion drawn from the expt. Performed?
- 17 a) What is meant by addictive disorder? 3
b) Name any 2 opiate narcotics.
c) Mention any 2 ways by which they affect the body.
- 18 Mention A and B of the following flow chart. Why is the importance of the technique shown is increasing? 3



- 19 Why are genes with antibiotic resistance considered as useful selectable markers for E.coli cloning vector? Explain with an example. 3
- 20 a) Name the nematode that infects the tobacco plants. 3
b) How are transgenic plants of tobacco raised to solve the above problem?

21 Study the population growth curves given below.

3



a) Identify curves a and b.

b) Mention the conditions responsible for curves a and b.

c) What is K in curve b? Define.

22 What initiatives were taken for reducing vehicular air pollution in Delhi? Has the quality of air improved in Delhi? 3

SECTION D

23 A lake that is rich in marine fishes sees a decline in its species population due to over harvesting. The people in the area made it a sacred grove and started worshipping it. The species population of the lake also became normal. 4

a) Which values are being promoted in the above case?

b) What would have been the effect if the lake had not been declared as a sacred grove?

SECTION E

24 a) Draw a sketch of the section of a typical anatropous ovule. 5

b) List the components of the embryo sac and mention their fate on fertilization.

OR

a) Give a schematic representation of spermatogenesis in humans.

b) At which stage of life does gametogenesis begin in male and female respectively?

c) Name the organs where the above process gets completed.

25 A tall pea plant with yellow seeds heterozygous for both the traits is crossed with a dwarf plant with green seeds. Work out the cross and show the F₂ generation in the form of a checker board. Give the phenotypic ratio. 5

OR

a) Why is DNA molecule a more stable genetic material than RNA?

b) Mention the salient features of a genetic code.

- 26 a) Cancer is one of the most dreaded human disease. Explain contact inhibition and metastasis with reference to the disease. 5
- b) Name the group of genes that could lead to cancer and how they do so?
- c) Name any 2 techniques which are useful to detect cancers of internal organs.
- d) What is the role of biological response modifiers with respect to the above?

OR

Complete the given table and add a note on their utility in human.

Name of the organism	Product/drug/molecule
Aspergillus niger	a
b	Lactic acid
c	Cyclosporin A
Monascus purpureus	d
Streptococcus	e
