

COMMON PRE BOARD EXAMINATION (2017-18)

Class XII

BIOLOGY

Time-3 hrs  
Marks-70

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**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 wings of birds and insects homologous or analogous organs? What type of evolution does it show? 1
- 3 How is the presence of Anabaena in the paddy fields beneficial to crops? 1
- 4 Name the special type of polymerase used in PCR and state its importance. 1
- 5 The gene cry1Ab is introduced into a plant to control corn borer. 1
- a) Name the resultant plant after successful insertion of the gene.
- b) State its importance in the plant

**SECTION B**

- 6 What are Sertoli cells? State their role. 2
- 7 Why is an antibody represented as H<sub>2</sub>L<sub>2</sub>? 2

**OR**

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

- 8 What is the role of Ori and restriction site in Pbr322? 2
- 9 What are ecological pyramids? What are the short comings of ecological pyramids in the study of ecosystem? 2

10 Alien species are a threat to the local species. Justify with 2 examples. 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 population explosion? Mention any two measures taken by the Government to control. 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 Write the full form of SNPs, BAC and YAC. 3

**OR**

What is the dual function of AUG? Give the sequence of bases it is transcribed from and its anticodon.

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- off 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 experiment.

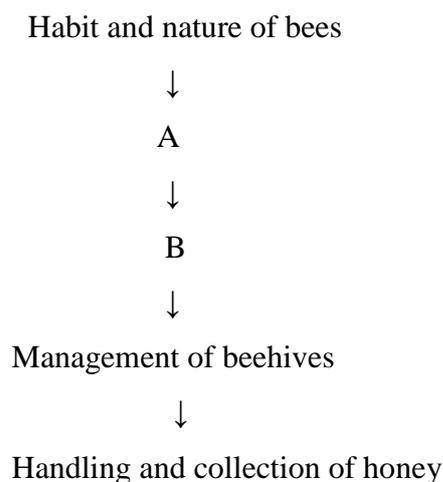
c) What was the conclusion drawn from the experiment performed?

17 a) What is meant by addictive disorder? 3

b) Name any 2 coca alkaloids.

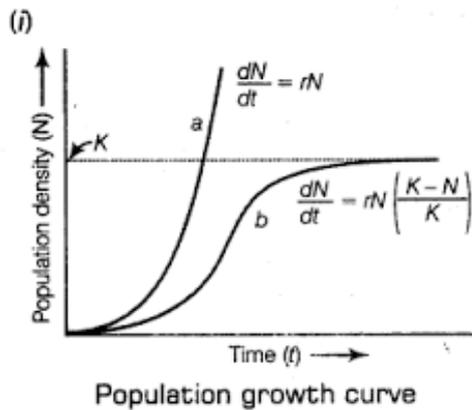
c) Mention any 2 ways by which they affect the body.

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 does K in curve b stand for? Explain.
- 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 adwarf plant with green seeds. Work out the cross and show the F<sub>2</sub> 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
<i>Aspergillus niger</i>	a
b	Lactic acid
c	Cyclosporin A
<i>Monascus purpureus</i>	d
<i>Streptococcus</i>	e

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