

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 How is it possible in Oxalis and Viola to produce assured seed set even in the absence of pollinators? 1
- 2 What do you infer from the resemblance between flying phalangers and flying squirrels with reference to their evolution? 1
- 3 Name the plant source of a drug which is popularly called as smack. How does it affect the body of the abuser? 1
- 4 What is called as the natural genetic engineer of plants? Why? 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 Differentiate between the 2 cells enclosed in a mature male gametophyte of an angiosperm. 2
- 7 a) Name the protozoan parasite that causes dysentery in human. 2
- b) Mention 2 diagnostic symptoms of the disease.
- c) How is this disease transmitted to others?
- 8 How can DNA segments be separated by gel electrophoresis, visualized and isolated? 2
- 9 a) Give one example to show how alien species introduction can result in loss of biodiversity. 2

- b) How is the 6th extinction presently in progress different from the previous episodes? 2
- 10 Which growth model is considered as a more realistic one? Justify. 2

SECTION C

- 11 a) Write the characteristic features of anther, pollen and stigma of wind pollinated flowers. 3
b) How do flowers reward their insect pollinators?
- 12 Write the function of each of the following. 3
a) seminal vesicle b) scutellum c) acrosome of human sperm
- 13 A DNA segment has a total of 1500 nucleotides out of which 410 are Guanine containing nucleotides. How many pyrimidine bases this DNA segment will have? 3
- 14 a) Name the scientist who called t RNA as adapter molecule. 3
b) Draw a clover leaf structure of t-RNA showing the following.
1)Tyrosine attached to t-RNA.
2)Anticodon UCA for this in its correct site.

OR

- a) Only one strand of DNA takes part in transcription. Why?
b) Give a brief note on the various complexities involved in eukaryotic transcription.
- 15 A pea plant with purple flowers was crossed with white flowers producing 50 plants with only purple flowers. On selfing these produced 482 plants with purple flowers and 162 with white flowers. Show the cross and explain which genetic mechanism accounts for this result? 3
- 16 A non haemophilic couple was informed by their doctor that there is possibility of a haemophilic child to be born to them. Explain the basis of this information. Give the genotypes and phenotypes of all the possible children who could be born to them. 3
- 17 a) Name the Indian scientist whose efforts brought Green Revolution in India. 3
b) Mention the steps that are essentially carried out in developing a new genetic variety of crop under plant breeding programme.
- 18 a) Name the infective stage of Plasmodium which Anopheles takes in along with the blood meal from the infected human. 3
b) Why does the infection cause fever in humans?
c) Give a flow chart of that part of the life cycle of the parasite in the insect.
- 19 Write the significance of the following in biotechnology. 3
a) chilled ethanol b) Microinjection c) Bioreactors
- 20 How did the American Company go about preparing the human insulin? How is that different from that produced by the functional human insulin gene? 3

- 21 a) Name the type of biodiversity represented by 50,000 different strains of rice in India. **3**
b) What is so special about tropics that accounts for their greater biological diversity?
- 22 a) Mention the major causes of air pollution in metro cities. **3**
b) Explain any 3 measures taken by the Delhi Government to control pollution.

SECTION D

- 23 A snake charmer came to a house and smelled the presence of a cobra. He convinced the residents that he could remove the cobra. The residents allowed him to look for the snake and kill it .One of the resident objected to the action. **4**
- a) Do you think that the resident was right in objecting?
b) What is the importance of a snake in the ecosystem?
c) What value is being exhibited by the resident?

SECTION E

- 24 Describe in sequence the events that lead to the development of a 3 celled pollen from pollen mother cell in angiosperms. **5**

OR

- a) Give a schematic representation showing the events of oogenesis in human female.
b) Mention the various events which occur just prior to fertilization in human.
- 25 a) Explain Mendels law of independent assortment with an example. **5**
b) How did Morgan show the deviation in inheritance pattern in Drosophila with respect to this law?

OR

- a) What is Industrial melanism?
b) Explain the case of Industrial melanism as an evidence of Natural selection.
- 26 a) Give a schematic representation of replication of HIV in human. **5**
b) Why is it called a retro virus?
c) Mention any 2 measures taken by the NGOs to educate people about AIDS.

OR

- a) What are the various stages in the treatment of sewage?
b) Give a note on the role of microbes in sewage treatment.
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