

LPS

FIRST TERM EXAMINATION 2017 – 2018
CLASS XII – BIOLOGY

Time: 3 hours

MM 70

General Instructions

There are total 26 questions in 5 sections. Section A has 5 questions of 1 mark each. Section B has 5 questions of 2 marks each. Section C contains 12 questions of 3 marks each. Section D has 1 value based question of 4 marks & Section E has 3 long answer type questions of 5 marks each. No overall choice, however one choice has been given in one question of three marks and one question of 5 marks.

SECTION A

- ✓ Q1 Which group of organisms produce non-motile gametes? How do these reach female gamete for fertilisation? *Plants*
- ✓ Q2 Which integuments of an ovule become hard and why water content gets reduced as the seed matures?
- ✓ Q3 How many chromosomes do drones of honeybee possess? Name the type of cell division that is involved in the production of sperms by them.
- ✓ Q4 According to Hugo de Vries what is the cause of speciation in organisms?
- ✓ Q5 Which method of cellular defence works in all eukaryotic organisms?

SECTION B

- ✓ Q6 Mention the evolutionary significance of following organisms –
a) Shrews b) Lobefins c) Homo habilis d) Homo erectus
- ✓ Q7 a) Write the function of RNA polymerase II.
b) When and at what end does the 'tailing' of hnRNA take place?
- ✓ Q8 How do histones acquire positive charge?
- ✓ Q9 a) Seeds of some grasses are called apomictic. Explain.
b) Give two reasons to convince a farmer to use apomictic crop.
- ✓ Q10 Name the cellular contents that are carried by pollen tube. How does pollen tube gain its entry into the embryo sac?

SECTION C

- ✓ Q11 a) How is banana crop cultivated? Mention the method of its propagation.
b) Explain the importance of syngamy and meiosis in a sexual life cycle of organism.
- ✓ Q12 Double fertilisation is reported in plants of both castor and groundnut, but the mature seeds of groundnut are non albuminous and castor are albuminous. Explain post fertilisation events that are responsible for it.
- ✓ Q13 Describe the process of parturition in humans.
- ✓ Q14 a) Why are grasshoppers and drosophila said to show male heterogamety?
b) Explain female heterogamety with the help of suitable example.
- ✓ Q15 What is satellite DNA in genome? Explain its role in DNA fingerprinting.
- ✓ Q16 a) DNA molecule is more stable genetic material than RNA, explain why?
b) Genetic code is said to be
i) unambiguous ii) degenerative iii) universal
Explain why.
- ✓ Q17 Why do lepidopterans die when they feed in Bt cotton plant? Explain how does it happen.

- Q18 a) What are 'cloning sites' in a cloning vector? Explain their role. Name any two such sites in PBR³²².
b) Explain the importance of ori, amp^R and rop in e.coli vector.
- Q19 What is Ti plasmid? Name the organism where it is found. How does it help in genetic engineering?

OR

Name and describe the technique that helps in separating the DNA fragment formed by the use of restriction endonucleases.

Q20 Recombinant DNA technology is of great importance in the field of medicine. With the help of flow chart show how this technology has been used in preparing genetically engineered human insulin.

- Q21 a) How does rDNA help in detecting the presence of mutant genes in cancer patients?
b) What is the principle of ELISA?

- Q22 a) Name the first transgenic cow. *Sohiwal*
b) Explain the importance in the quality of the product produced by it.

SECTION D

(Value Based)

- Q23 During a visit to Kedarnath, Aditya came across a young couple staying in the adjacent room in the hotel. He learnt that the couple had been visiting different temples and performing rituals to get a child. Aditya was astonished and explained to them about ART which he had recently studied in Biology. The couple was happy and understood their wrong approach and thanked Aditya.
- a) Identify the values which Aditya has shown.
b) What is ART? What are the various methods included in ART?
c) What are the limitations for which ART is not commonly accepted?

SECTION E

- Q24 a) How do the observations made during moth collection in pre and post industrialised era in England support evolution by natural selection?
b) Explain the phenomenon that is well represented by Darwin's finches, other than natural selection.

OR

Explain lac operon (switch on and switch off).

Q25 Describe the experiment that helped to demonstrate the semi conservative mode of replication.

- Q26 a) Draw a sectional view of seminiferous tubule of a human. Label its different parts.
b) Explain hormonal control of spermatogenesis in humans.