

DEPARTMENT OF PRE UNIVERSITY EDUCATION

MODEL QUESTION PAPER - 2022-23

II PUC

SUB: BIOLOGY (36)

TIME: 3 HOURS 15 MINUTES

MAX. MARKS: 70

General instructions:

1. The question paper consists of four parts A, B, C, and D.
2. PART-A consists of I & II and Part-D consists of V & VI.
3. All the parts are compulsory.
4. Draw diagrams wherever necessary, unlabelled diagrams or illustrations do not attract any marks.

PART- A

I. Select the correct alternative from the choices given below:

1 x 15 = 15

1. Which of the following organism exhibits oestrous cycle?
a) Monkey b) Human c) Rat d) Apes
2. Triploid condition is observed in
a) Egg cell b) Synergid c) Antipodals d) Primary endosperm nucleus
3. The first movements of the foetus are observed during which month of the pregnancy?
a) First month b) Second month c) Fifth month d) Sixth month
4. An example for non-medicated IUD is
a) Cu-T b) Lippes loop c) LNG-20 d) Multiload 375
5. Appearance of autosomal recessive trait results in a condition called
a) Phenylketonuria b) Turners' syndrome c) Haemophila d) Colour blindness
6. Biopsy is useful in the detection of
a) Typhoid b) Cancer c) AIDS d) Allergy
7. Biofortified bitter melon is enriched with
a) Vitamin A b) Protein c) Vitamin C d) Iron
8. A typical example for mycorrhiza forming fungus is
a) *Penicillium* b) *Aspergillus* c) *Trichoderma* d) *Glomus*
9. Select the correct sequence of steps in polymerase chain reaction:
a) Annealing → Denaturation → Extension
b) Denaturation → Annealing → Extension
c) Annealing → Extension → Denaturation
d) Denaturation → Extension → Annealing

26. Distinguish between linkage and recombination.
27. Draw the pedigree symbols for: a) Affected male individual b) Mating between relatives.
28. Sketch and label a scrubber used in controlling air pollution.

PART – C

IV. Answer any FIVE of the following questions in about 40-80 words each, wherever applicable: **3 x 5 = 15**

29. What is placenta? Name the hormones secreted by it.
30. Explain natural methods for birth control.
31. Mention the different steps involved in DNA fingerprinting.
32. Draw a labelled diagram of Stanley Miller's apparatus.
33. Describe any three barriers of innate immunity with examples.
34. a) Why meristem is preferred in tissue culture as explant? (1)
b) Mention the objectives of plant breeding. (2)
35. a) Define endemism. (1)
b) "Over-exploitation of natural resources by humans resulted in the extinction of many species in the last 500 years". List any two examples for this. (2)
36. Schematically represent phosphorous cycling in a terrestrial ecosystem.

PART- D

V. Answer any THREE of the following questions in about 200-250 words each, wherever applicable: **5 x 3 = 15**

37. Describe the structure of a mature female gametophyte in angiosperms.
38. Explain any five features of genetic code.
39. Explain the different steps involved in the development of a new genetic variety of crop plant.
40. Mention the roles played by microbes in household products.
41. Explain the process of separation and isolation of DNA fragments using gel-electrophoresis.
42. Define the following:
a) Biochemical oxygen demand b) Eutrophication c) Biomagnification
d) Algal bloom e) Ecological sanitation

VI. Answer any TWO of the following questions in about 200-250 words each, wherever applicable: **5 x 2 = 10**

43. Draw a sectional view of the human male reproductive system.
44. Explain the benefits of transgenic animals for humans.
45. In Mendel's experiment, when two pairs of traits are combined in a hybrid, segregation of one pair of characters is independent of other pair of characters. Justify this by representing schematically the two gene inheritance.
46. a) Differentiate between euryhaline animals and stenohaline animals. (2)
b) Describe sexual deceit in *Ophrys*. (3)
47. List out the measures used for prevention and control of alcohol and drugs abuse among adolescents.