

Duration: 3hr 15

Min Max. Marks: 70

- **General Instructions:**
- **This Question paper consists of four parts A, B, C, D.**
- **Part – A consists of I and II and Part D consists of two parts, section –V and – VI**
- **All the parts are compulsory**
- **Draw diagrams wherever necessary. Unlabeled diagrams do not carry any marks**

PART – A

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

1 x 15 = 15

1. The body of the ovule is fused with the funicle in the region called
a) Funicle b) Raphe c) Hilum d) Chalaza
2. Milky water of tender coconut is
a) Free nuclear endosperm b) Degenerated nucellus c) Residual nucellus d) Perisperm
3. Aditheous anther has
a) 2 pollen sac b) 4 pollen sac c) 2 microsporangia d) 2 bilobed microsporangia
4. Total number of genotypes in human blood groups are
a) One b) Two c) Five d) Six
5. During oogenesis meiosis occurs in
a) Primary oocyte b) Secondary oocyte c) Both (a) and (b) d) oogonia
6. Anticodon site is located on
a) hnRNA b) tRNA c) rRNA d) mRNA
7. Emergency contraceptives are effective if used within
a) 72 hours of coitus b) 72 hours of ovulation
c) 72 hours of menstruation d) 72 hours of implantation
8. Which theory attempts to explain to us the origin of universe?
a) Explosion theory b) Big-bang theory c) Black hole theory d) Gamma theory
9. Which of the following enzyme binds to the promoter and initiates the process of transcription?
a) DNA polymerase b) Lipase c) RNA polymerase d) Lysozyme
10. Which of the following used as an immune suppressant?
a) Cyclosporin A b) Statin c) Streptokinase d) Penicillin
11. Sense and antisense RNA are _____ to each other.
a) Similar b) same c) Complementary d) Different
12. Which of the following organism contain the greatest amount of energy?
a) Heterotrophs b) Decomposers c) Autotrophs d) Scavengers
13. An inverted pyramid of biomass can be found in which ecosystem?
a) Forest b) Marine c) Grassland d) Thundra
14. What do South American lakes visiting flamingoes and resident fishes compete for
a) Phytoplankton b) Small fishes c) Water d) Zooplankton
15. Rouwfiavomitoria is an example of
a) Species diversity b) Genetic diversity c) Ecological diversity d) All of the above

II. Choose the correct and fill in the blanks.

1 x 5 = 5

(Tapetum, T.H Morgan, Grasshopper, Coelocanth, Endometrium)

16. Blastocyst become embedded in the _____ of uterus.
17. Chromosomal theory of inheritance was experimentally proven by _____.
18. Lobed fin fish discovered in South Africa was _____
19. _____ helps in the nourishing the developing pollen grain.
20. XX-XO type of sex determination is observed in _____

PART – B

III. Answer any FIVE of the following.

2 X 5 = 10

21. Mention four features of ideal contraceptive.
22. What is filiform apparatus? What is their function?
23. What is corpus luteum? Mention its function.
24. Mention any four methods of detection of cancer.
25. Name the microbial source of clot buster enzyme and Statin.
26. Write two examples for loss of biodiversity due to aline species invasion
27. Evolution can also occur by antropogenic action. Justify giving any two reasons.
28. Mention any four uses of genetically modified plants.

PART – C

IV. Answer any FIVE of the following.

3 X 5 = 15

29. Draw a neat labelled diagram of Young anther.
30. Draw a neat labelled diagram of Miller's experiment.
31. What are biodiversity hotspots? Mention any two hotspots in India.
32. a) Nametheorganismsthat produce cry genes. b)Mention the cry genes that control cotton bollworm and corn- borer.
33. List out the goals of Human Genome Project.
34. What are a) Stratification b) Standing crop c) Trophic level.
35. What are sacred grooves? Give any two examples of species extinction due to over exploitation.
36. What is Biopiracy? List out any two benefits of Transgenic animals.

**PART –D
Section -I**

V. Answer any FOUR of the following.

5 X 4 = 20

37. With a neat labelled diagram describe the structure of Male gamete.
38. a) What is pleiotropy? Give an example. b)Write a note on colour blindness
39. Explain the process of transcription in Eukaryotes.
40. Describe the role of microbes as biofertilizers.
41. Explain Hershey- Chase experiment that proves DNA as the genetic material.
42. a) Name the Opioid extracted from the latex of poppy plant. Mention its uses.
b)Write the scientific name of the plant that yield coca alkaloids. Mention its affects.
c)Name the plant with hallucinogenic properties.
43. a) Draw a neat labelled diagram of a biogas plant.
b) Name the institution which helped in the development of biogas production in India.
44. What is RNA interference? How does RNA interference help to develop resistance in tobacco plant for Nematode infection.

Section -II

VI. Answer any ONE of the following.

5 x 1 = 5

45. a)Scutellum is the part of seed embryo. It is compared to which part of the seed in Dicotyledons.
b)Mention the function of Endosperm and Coleorhiza. c)Give an example of Endospermous and non endospermous seeds
46. Explain the 'Evil Quartet' of biodiversity loss.
47. Define Decomposition. Explain the steps of decomposition.