

(Kannada and English Versions)

Time : 3 Hours 15 Minutes]

[Total No. of questions : 37]

[Max. Marks : 70

(English Version)

- Instructions :** 1. *This question paper consists of four Parts–A, B, C and D. Part–D consists of two Sections. Section–I and Section–II.*
2. *All the Parts are compulsory.*
3. *Draw diagrams wherever necessary. Unlabelled diagrams or illustrations do not attract any marks.*

PART – A

Answer the following questions in **one word or one sentence each** :
(10 × 1 = 10)

- 1) How many chromosomes are there in meiocytes of human beings?
- 2) Name the inducer which regulates the switching on and off of the lac operon.
- 3) Which type of R.N.A. polymerase enzyme transcribes precursor m.R.N.A.?
- 4) Name the part of the flower which develops into the fruit after fertilization.
- 5) Write the scientific name of the fungus which produce cyclosporin A.
- 6) What are Poineer species?
- 7) Which bacteria is commonly found in the anaerobic sludge during sewage treatment?
- 8) Name the International treaty which controls the emission of ozone depleting substances.
- 9) Define endemism.
- 10) What are Euryhaline organisms?



PART – B

Answer **any five** of the following questions in **3 to 5 sentences each** wherever applicable : (5 × 2 = 10)

- 11) Name the scientist who found out D.N.A. and what was the name given by him?
- 12) Write the accessory ducts found in male reproductive system.
- 13) Mention the genotype of the parents when their children are with A, B, AB, O blood groups.
- 14) Name the two hormone releasing I.U.D.s.
- 15) What are the two types of disorders of humans where the Karyotype is 47?
- 16) Name the two primates those were existing in 15 mya.
- 17) Mention the two diseases resisted by mungbean through mutation breeding.
- 18) Write the two basic amino acid residues which are rich in histones.

**PART – C**

Answer **any five** of the following questions in about **40 to 80** words **each** :
(5 × 3 = 15)

- 19) Mention the asexual reproductive structures of the following:
- Penicillium
 - Hydra
 - Sponges.
- 20) **Sketch and label Miller's Experiment.**
- 21) Name the diseases caused by the following organism:
- Rhino virus
 - Wuchereria bancrofti
 - Haemophilus influenzae.
- 22) Define Infertility. Write two assisted reproductive technology to overcome infertility.
- 23) Schematically represent phosphorus cycle.
- 24) What is ecological succession? How Hydrarch succession is different from that of xerarch succession?
- 25) Alien species invasion caused decline or extinction of indigenous species. Justify the statement by giving three examples.
- 26) Define Autogamy. Write the two different kinds of flowers that exhibit autogamy.

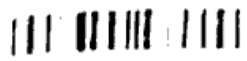


PART - D

SECTION - I

Answer **any four** of the following questions in about **200 to 250** words **each** wherever applicable : **(4 × 5 = 20)**

- 27) Explain a **mature embryo sac** with a neat labelled diagram.
- 28) Schematically represent the inheritance of two genes in pea plants with reference to seed colour and shape <https://www.karnatakaboard.com>
- 29) Mention five salient features of human genome project.
- 30) a) Define immunity and name two different types of immunity. **(3)**
b) Draw a neat labelled diagram of structure of an antibody molecule. **(2)**
- 31) With reference to tissue culture explain the following terms:
- a) Explant
 - b) Totipotency
 - c) Micropropagation
 - d) Somaclones
 - e) Somatic hybrids.
- 32) Explain briefly how the transgenic animals benefit the human beings.



SECTION – II

Answer **any three** of the following questions in about **200 to 250** words each wherever applicable :
(3 × 5 = 15)

33) Draw a neat labelled diagram of sectional view of female reproductive system.

34) Explain the biogas plant with a neat labelled diagram.

35) Mention the population interactions exist among the following

- a) Abingdon tortoise and goats in galapagos islands (1)
- b) Cuckoo lays eggs in crow's nest (1)
- c) Sea-anemone and clown fish (1)
- d) Wasp laying eggs in fig fruit. (1)
- e) Orchid ophrys and bees. (1)

36) a) Differentiate Endonucleases and Exonucleases. (2)

b) Diagrammatically represent recombinant D.N.A. technology. (3)

37) Write a note on the following:

a) Remedy for plastic waste (2)

b) Radio active wastes. (3)

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