

(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 Pioneer 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.Ds.
- 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:
- a) *Penicillium*
 - b) *Hydra*
 - c) *Sponges*.
- 20) **Sketch and label Miller's Experiment.**
- 21) Name the diseases caused by the following organism:
- a) *Rhino virus*
 - b) *Wuchereria bancrofti*
 - c) *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
- 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)