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BIOLOGY

Time: 3.00 hrs.

Part – I (Bio-Botany) 35 marks

Marks: 70

8 x 1 = 8

I. Choose the correct answer:

- Identify the correctly matched pair:
 - Tuber – Allium cepa
 - Sucker – Pistia
 - Rhizome – Musa
 - Stolon – Zingiber
- The genes controlling the seven pea characters studied by Mendel are known to be located on how many different chromosomes?
 - Seven
 - Six
 - Five
 - Four
- Which of the following sentences are correct?
 - The offspring exhibit only parental combinations due to incomplete linkage.
 - The linked genes exhibit some crossing over in complete linkage.
 - The separation of two linked genes are possible in incomplete linkage.
 - Crossing over is absent in complete linkage.
 - 1 and 2
 - 2 and 3
 - 3 and 4
 - 1 and 4
- Polyethylene glycol method is used for
 - biodiesel production
 - seedless fruit production
 - energy production from sewage
 - gene transfer without a vector
- Which of the following is not a abiotic component of the ecosystem?
 - Bacteria
 - Humus
 - Organic compounds
 - Inorganic compounds
- IUCN red list categories has developed criteria for threatened species. The Criteria 'c' refers to
 - Geographic range
 - Quantitative analysis
 - Small population size and decline
 - Population reduction
- Jaya and Ratna are the semi dwarf varieties of
 - wheat
 - rice
 - cowpea
 - mustard
- Groundnut is native of _____.
 - Philippines
 - India
 - North America
 - Brazil

II. Answer any four of the following:–

4 x 2 = 8

- Write short note on Heterostyly?
- What is Gene mapping?
- Define Callus.
- Construct the food chain with the following data? : Hawk, plants, frog, Snake, grasshopper
- Expand CCS.
- What is Emasculation?

III. Answer any 3 questions. (Q.No.19 is compulsory)

3 x 3 = 9

- Name the seven contrasting traits of Mendel?
- Write significance of food web.
- Difference between primary and secondary succession.
- What are the different types of hybridization?
- A person got irritation while applying chemical dye what would be your suggestion for alternative?

IV. Answer in detail.

2 x 5 = 10

- Describe dominant epistasis with an example. (OR)
 - What are the steps involved in DNA technology?
- Explain the mechanism of decomposition. (OR)
 - Which fruit is rich in potassium? Mention its economic importance.

Part – II (Bio-Zoology) 35 marks**I. Choose the correct answer:****8 x 1 = 8**

1. Which of the following is not an inheritance of X-linked genes?
a) Daltonism b) Albinism c) Haemophilia d) Duchenne's muscular dystrophy
2. Which period was called 'Age of fishes'?
a) Permian b) Triassic c) Devonian d) Ordovician
3. In the E-waste generated by the Mobile Phones, which among the following metal is most abundant?
a) Copper b) Silver c) Palladium d) Gold
4. The process which the sperm undergoes before penetrating the ovum is
a) Spermiation b) Cortical reaction c) Spermiogenesis d) Capacitation
5. A mRNA molecule is produced by
a) Replication b) Transcription c) Duplication d) Translation.
6. Which of the following is a bacterial STI?
a) Candidiasis b) Genital warts c) Chlamydiasis d) Trichomoniasis
7. Allergy involves
a) IgE b) IgG c) IgA d) IgM
8. The special environments for both people and nature are _____.
a) Sacred Groves b) Biosphere Reserves c) Protected areas d) Wild life Sanctuaries.

II. Answer any four of the following:–**4 x 2 = 8**

9. Write short notes on: Ecosan Toilets
10. What is called as Kin selection.
11. Differentiate between divergent evolution and convergent evolution with one example each.
12. Why is the offsprings formed by asexual reproduction referred as a clone?
13. Mention any two applications of DNA finger printing.
14. Write the preventive measures of STDs.

III. Answer any 3 questions. (Q.No.19 is compulsory)**3 x 3 = 9**

15. Explain the connecting links with examples.
16. Differentiate Natality and Mortality.
17. What is SMOG and how it is harmful to us?
18. What is colostrum? State its importance.
19. The loss of a species as a consequence of the extinction of another – Name this phenomenon and explain it with example.

IV. Answer in detail.**2 x 5 = 10**

20. a) Distinguish between primary immune response and secondary immune response
(OR)
b) What is referred to as industrial alcohol? Describe its preparation.
21. a) Discuss the role of an individual to reduce environmental pollution
(OR)
b) Explain the structure of human ovum with appropriate diagram.
