**JAIN COLLEGE, Bangalore**
**Mock Paper – 1, January - 2020**
**II PUC – Biology (36)**

**Time: 3 Hours 15 Minutes** **Max. Marks: 70**

**NOTE: All (37) questions must be answered without choice**

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

1. Name the structure that degenerates during menstrual cycle if there is no pregnancy.
2. Name the cell that provides nutrition to the male germ cells.
3. Define saltation.
4. Name the pathogen that causes Malaria.
5. What is an explant?
6. Which fungus is used to produce the immunosuppressive agent cyclosporin-A?
7. What is insertional inactivation?
8. Define metastasis.
9. What are biodiversity 'Hot Spots'?
10. State Gause's competitive Exclusion principle.

**II. Answer any five of the following questions in about 3-5 sentences each: 5 × 2 = 10**

11. What are vegetative propagates? Give two examples.
12. State the genotypic and phenotypic ratio of Monohybrid cross.
13. Who provided an experimental proof for chemical evolution of life? Name the apparatus that was used for the same.
14. Mention the withdrawal symptoms of drug addicts.
15. List any two economically important products for humans obtained from Apis indica.
16. Draw a neat labeled diagram of plasmid P BR 322.
17. Write a note on co-extinction.
18. What are sacred groves? What is their role in conservation?

**III. Answer any five of the following questions in about 40-80 words each : 5× 3 = 15**

19. Define binary fission. Illustrate binary fission in Amoeba.
20. Draw a neat labeled diagram of V.S of maize grain.
21. Bring out the parallelism between genes and chromosomes.
22. What are coacervates? Give their importance in origin of life.
23. Explain the structure of antibody.
24. Give a brief account of vectors used for cloning genes in plants and animals.
25. Schematically represent simplified model of phosphorous cycle.
26. Define ecological succession. Mention the two types of succession in plants based on the nature of the habitat. What is a pioneer species?

**IV Answer any four of the following questions in 200-250 words each: 4x5=20**

27. What is pollination? Explain the types and factors favouring self-pollination.
28. Explain the process of oogenesis with the help of schematic representation.
29. What are sexually transmitted diseases? Give examples. Mention the different modes of transmission and prevention of sexually transmitted diseases.
30. Explain the mechanism of DNA replication by semi-conservative method.

31. What is an operon? Explain the mechanism of regulation of gene expression with reference to lactose metabolism.
32. With a labeled diagram explain packaging of DNA helix.

**V Answer any three of the following in about 200-250 words each: 5× 5 = 15**

33. List five advantages of inbreeding.
34. Discuss briefly the process of production of Bt Cotton.
35. Describe the roles of:
    a. Microbes in production of house hold products.
    b. Microbes in biogas production.
    c. Give the scientific name of Baker's yeast
36. Mention and define five population interactions with an example for each.
37. Explain five effects of water pollution.

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**JAIN COLLEGE, Bangalore**
**Mock Paper – 2, January - 2020**
**II PUC – Biology (36)**

**Time: 3 Hours 15 Minutes** **Max. Marks: 70**

**NOTE: All (37) questions must be answered without choice**

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

1. Name the first cell of gametophytic generation in flowering plants.
2. Give an example for allosomal trisomy.
3. Name the outer layer of cells in a blastocyct.
4. What is algal bloom?
5. State chargaff's rule of base equivalence.
6. What are oncogenic viruses?
7. Define gene pool.
8. What function do methanogens perform in the rumen of cattle?
9. Which group of enzymes is known as molecular scissors?
10. Define ecological niche.

**II. Answer any five of the following questions in about 3-5 sentences each. 5 × 2 = 10**

11. Define the term monecious and dioecious with respect to sexuality of plants mentioning examples for each.
12. What is male heterogamety with respect to sex determination? Give an example.
13. Differentiate homologous and analogous organs.
14. Mention four types of innate immunity barriers with an example for each.
15. Distinguish between malignant and benign tumor.
16. Draw a neat labeled diagram of sparged stirred tank bioreactor.
17. Depict a simple grazing food chain
18. Give an example of an ecological pyramid which is always upright. Justify your answer.

**III. Answer any five of the following questions in about 40-80 words each. 5× 3 = 15**

19. Mention the strategies of reproductive health.
20. Describe the structure of gynoecium or pistil with a neat labeled diagram.
21. Draw a schematic structure of a transcription unit.
22. a. What is biological oxygen demand (BOD)?
    b. Differentiate between primary sludge and activated sludge.
23. Explain why we should conserve biodiversity.
24. Define poultry. Mention the measures to be considered for successful poultry farm management.
25. List our three salient features of genetic code.
26. What is deforestation? Explain importance of people's participation in forest conservation with reference to Amrita Devi Bishnoi's case study.

**IV. Answer any four of the following questions in 200-250 words each, 4× 5 = 20**

27. Draw a neat labeled diagram of sectional view of female reproductive system.
28. Explain any five birth control/contraceptive methods.
29. Describe the structure of an anatropous ovule with a neat labeled diagram.
30. Explain the various steps involved in translation.

31. a. Explain the structure of t-RNA molecule with a neat labeled diagram.
    b. Define pleiotropy. Give an example.
32. Describe DNA structure as proposed by Watson and Crick with a neat labeled diagram.

**V. Answer any three of the following in about 200-250 words each 3× 5 = 15**

33. Explain the role of any five molecules which enrich soil nutrients.
34. Describe replication of HIV with schematic representation.
35. What is nutrient cycling? Explain the types of biogeochemical cycles mentioning examples for each.
36. Explain the steps involved in r- DNA technology.
37. What is Global Warming? Mention the four green-house gases responsible for global warming with two control measures.

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