JAIN COLLEGE, Bangalore
Mock Paper – 1, December - 2017
II PUC – Biology (36)

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

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

1. Genetic code is degenerate. Give reason.
2. How do introns differ from exons?
3. People living at high altitudes have high Hb content. Give reason.
4. Name the most commonly used natural vector for cloning genes in plants.
5. Why human males are called heterogametic?
6. Define clone.
7. State 10% law.
8. What is mutation breeding?
9. What is bioprospecting?
10. Define menstrual cycle.

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

11. What is point mutation? Give an example.
12. What are restriction enzymes? Mention two classes of it.
13. What is amniocentesis? Why it is legally banned in our country?
14. Define the terms: a. Gene flow. b. Genetic drift.
15. What is Jhum cultivation? How does it account for deforestation?
16. Distinguish between aneuploidy and polyploidy?
17. What are Alien species invasions? Explain with a suitable example.
18. Define the terms a. Ovulation b. Parturition.

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

19. What is apomixis? Mention its significance in agriculture.
20. Define embryogenesis and classify animals based on the development of embryo, giving an example for each.
21. What is MTP? Mention an advantage and disadvantage of this technique.
22. Describe Stanley Miller's experiment with a diagram and mention the significance of this experiment.
23. a. Mention the pathogen and any two symptoms of typhoid.
    b. Name the diagnostic test used to confirm typhoid.
24. a. What is single cell protein? Mention its significance.
    b. Name any two organisms that are used as single cell proteins.
25. Mention any three tools used in genetic engineering with an example for each.
26. What is sex determination.Explain the method of sex determination in human beings.

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

27. With a neat labeled diagram explain the structure of a typical anatropus ovule.
28. What is oogenesis? Describe with a schematic representation?
29. What are genetic disorders? Write short notes on the following Mendelian disorders.
    a. Haemophilia b. Sickle cell anaemia

30. Define innate immunity. Explain the barriers of innate immunity.
31. a. Define tissue culture.
    b. What are explants? Which part of the plant would you select as an explant to produce virus free plants.
    c. What do you mean by somatic hybridization? Mention an example.
32. Describe the role of microbes in the production of industrial products.

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

33. a. What is biome? Mention any two biomes of India.
    b. Compare eurythermal and stenothermal animals with suitable examples.
    c. What is altitutde sickness? (2+2+1)
34. What is nutrient cycling? Explain the types of biogeochemical cycles with an example for each.
35. Describe the various steps involved in the synthesis of human insulin through genetic engineering.
36. a. What is ozone depletion?
    b. What is ozone hole?
    c. What are ozone depleting substances? Give examples.
    d. Mention two effects of ozone layer depletion. (1+1+2+1)
37. Distinguish between the following:
    a. Euchromatin and heterochromatin.
    b. Repetitive DNA and Satellite DNA.

JAIN COLLEGE, Bangalore
Mock Paper – 2, December - 2017
II PUC – Biology (36)

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

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

1. Define pollution.
2. Name the type of antibodies present in the colostrum.
3. Define the theory of Panspermia.
4. What is stratification?
5. Define climax community.
6. How do statins act as blood cholesterol lowering agents?
7. Mention an example for microbial bio control agent.
8. What is transformation in genetic engineering?
9. Define mortality.
10. Name the chemicals secreted by mast cells during allergic conditions.

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

11. Distinguish between gametogenesis and embryogenesis.
12. Mention the two approaches used while sequencing human genome.
13. Write short notes on biofortification.
14. Predators in nature are prudent. Justify the statement.
15. Name the four different species of Plasmodium.
16. Draw any two pedigree symbols used in the human pedigree analysis.
17. Distinguish between deforestation and reforestation.
18. What is river proper hypothesis? Mention its significance.

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

19. a. What is reproduction? Mention its significance.
    b. Offspring of sexual reproduction have better chances of survival. why?
20. Briefly explain the structure of a typical dicotyledonous embryo.
21. Distinguish active and passive immunity with a suitable example.
22. Define health. Mention the different criteria for achieving good health.
23. Explain how gene therapy is employed in the treatment of ADA gene deficiency.
24. What are age pyramids? Show diagrammatic representation of different age pyramids for human population.
25. Describe the mechanism of Semi conservative mode of DNA replication.
26. Define apiculture. Mention any two benefits and any two factors to be considered for a successful bee keeping.

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

27. a. Compare Chasmogamous and Cleistogamous flowers mentioning suitable example for each.
    b Why do you think the zygote is dormant for some time in a fertilized ovule?
    c. Name the early stages in the development of embryo in angiosperms.(2+1+2)
28. Distinguish between spermatogenesis and oogenesis.

29. What is population explosion? Mention any four reasons for over population. Suggest any two methods to overcome this.
30. a. Show pedigree representation for autosomal dominant and autosomal recessive traits.
    b. DNA is a better genetic material. Justify the statement. (3+2)
31. a. Distinguish between green revolution and blue revolution.
    b. Name the two key concepts of Darwin's theory of evolution?
32. Explain the selection of dark winged moths in response to industrial revolution in England to illustrate the theory of natural selection as proposed by Darwin.
    b. Differentiate between template and reading strands of DNA.(3+2)

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

33. a Define fishery? Mention any two fresh water and marine water food fishes and add a note on economic importance of fishery.
    b. Distinguish between pisciculture and aquaculture?
34. What are lymphoid organs? Describe the types of lymphoid organs with examples for each.
    b. Write notes on stimulants with examples.
35. Give an account of applications of biotechnology in agriculture.
36. How is standing crop differing from a standing state?
    b. What is logistic growth? Describe with a logistic growth equation.
    c. Show diagrammatic representation of Logistic and Exponential growth curves in a combined diagram.
37. Describe the mechanism of working of electrostatic precipitator with a diagram.
    b. Sketch a labeled diagram of scrubber and write a note on catalytic converter.

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