



B.Sc./4th Sem (H)/PHYS/24(CBCS)/New
2024

4th Semester Examination
PHYSIOLOGY (Honours)

Paper : C 10-T

(Genetics, Molecular Biology and Biotechnology)
(New Syllabus)

[Revised Syllabus, w.e.f. Session 2022-23]

[CBCS]

Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any **five** of the following questions : $2 \times 5 = 10$

1. State the salient features of genetic code. 2
2. Explain Chargaff's rule. 2
3. What are genomics and proteomics? 1+1
4. Differentiate prokaryotic and eukaryotic promoters. 2
5. What is cloning? State its significance. 1+1

P.T.O.

(2)

6. Why DNA replication is considered semi-conservative? 2

7. Define vaccine with an example. 1+1

8. Mention the function of an operon. 2

Group - B

Answer any *four* of the following questions : $5 \times 4 = 20$

9. Describe the doublehelical structure of DNA with suitable diagram. 4+1

10. What is oncogene? Mention the properties of cancer cell. 2+3

11. Write down the applications of recombinant DNA technology. 5

12. Discuss in brief the process of DNA replication in *E. coli*. 5

13. Explain the Meselson-Stahl experiment. 5

14. What are biofuels? Mention the application and utility of monoclonal antibodies. 2+3

Group - C

Answer any *one* of the following questions : $10 \times 1 = 10$

15. Briefly describe the lac operon concept. Why is intellectual property right important? What are biochips? 5+3+2

16. Differentiate between Northern blot and Southern blot. Discuss in brief Western blotting technique. Mention the applications of blotting techniques. 2+5+3

(3)

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4th Semester Examination

PHYSIOLOGY (Honours)

Paper : C 10-T

(Respiratory Physiology)

(Old Syllabus)

[CBCS]

Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any **five** of the following questions : 2×5=10

1. State the static and dynamic lung function tests. 2
2. What is artificial respiration? 2
3. What is hypercapnia? 2
4. What is meant by chloride shift? 2
5. State clinical significance of FEV₁. 2
6. Mention the causes of hypoxia. 2

P.T.O.

7. What is oxygen toxicity? 2
8. What is pneumothorax? 2

Group - B

Answer any *four* of the following questions : 5×4=20

9. Describe the changes in the body at high altitude and explain the acclimatization. 3+2
10. What is dead space? Mention the importance of dead space. 2+3
11. Write down the causes, symptoms and treatment of asthma. 2+1+2
12. Describe the O₂-Hb dissociation curve. Mention the factors affecting O₂-Hb dissociation curve. 3+2
13. Write a short note on lung function tests. 5
14. Discuss briefly the chemical regulation of respiration. 5

Group - C

Answer any *one* of the following questions : 10×1=10

15. Describe the diffusion of carbon dioxide and its transport in blood. 4+6
16. Discuss in brief the neural regulation of respiration. Write a short note on non-respiratory functions of lungs. 6+4
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