

2018

**PHYSIOLOGY**

[ **Honours** ]

**PAPER –IV**

*Full Marks : 90*

*Time : 4 hours*

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

*Illustrate the answers wherever necessary*

[ **NEW SYLLABUS** ]

**GROUP – A**

Answer any **two** questions, taking

**one** from each Subgroup :

15 × 2

Subgroup – A(a)

1. (a) Mention the detailed flow chart of gluconeogenesis from pyruvate that occurs within mitochondria.

( Turn Over )

- (b) Discuss the pathway of oxidation of palmitic acid along with its energetics.  $6 + (6 + 3)$
2. (a) Describe the functions of ascorbate with special emphasis on its antioxidants property.
- (b) Draw a flowchart of ammonia detoxification process.
- (c) Why sodium is essential for our homeostasis ?  $5 + 6 + 4$
3. (a) Prepare a balanced diet chart for Indian college student.
- (b) Mention the causes, symptoms and nutritional management of Kwashiorkor.
- (c) Why dietary fibres are nutritionally essential for human ?  $6 + (2 + 2 + 2) + 3$

Subgroup – A(b)

4. (a) Discuss the bacterial transformation process as observed in Griffith's experiment.

- (b) Describe three types of sterilization process with their importance.  $6 + (3 \times 3)$
5. (a) Discuss the structure of MHC I and its importance in immunity.
- (b) How does active immunity differ from passive immunity ?
- (c) Which organ is essential for cellular immunity and why ?  $(5 + 2) + 4 + 4$
6. (a) Discuss physiological hazards of pesticides.
- (b) 'Biotransformation is related to bioremediation of pesticides'. – Explain. 15

GROUP – B

Answer any five questions, taking two from each Subgroup :  $8 \times 5$

Subgroup – B(a)

7. (a) "Pancreatic secretion is necessary for intestinal enzyme action" – Justify.

- (b) Why LDL-Cholesterol is dangerous for human health ? 4 + 4
8. (a) What is labile methyl group ? Mention its physiological importance.
- (b) Draw the schematic organization of cytochrome pathway and two site-specific inhibitors of this pathway. (2 + 2) + (3 + 1)
9. (a) Mention oxidative reactions of HMP shunt pathway
- (b) How nitric oxide is synthesized in human body ? Mention its importance in maintaining good health. 3 + (2 + 3)
10. (a) Why splenomegaly occurs in malaria ?
- (b) Why mid day meal programme is beneficial for child health ? 3 + 5
11. (a) How anthropometry is useful in nutritional assessment of human ?
- (b) Why does gastrectomy cause pernicious anaemia ? 5 + 3

Subgroup – B(b)

12. Discuss different phases of bacterial growth with characteristic features of each phase. 8
13. What do you mean by food spoilage ? Mention the causes and prevention of food spoilage. 2 + (3 + 3)
14. Discuss briefly the molecular structure of an IgG molecule with a diagram. 5 + 3
15. Discuss the effects of positive G-force on human body. What do you mean by G-LOC ? 6 + 2
16. Discuss the process of Ag-Ab reaction and mention their features. 5 + 3

GROUP – C

Answer any five questions, taking two from each Subgroup : 4 × 5

Subgroup – C(a)

17. What is Cori cycle ? Mention its importance. 2 + 2

18. What is oxidative stress ? Which nutrients can prevent it ? 2 + 2
19. What happens in absense of following in human body ? 2 + 2
- (a) Phenylalanine hydroxylase
- (b) Tyrosinase.
20. What is thermic Effects of food and PAR ? 2 + 2
21. What happens – (a) if OAA level falls (b) in absence of carnitine carrier in mitochondria. 2 + 2

Subgroup – C(b)

22. Define pasteurization and its importance. 2 + 2
23. What is Prebiotics and Probiotics ? 2 + 2
24. Mention the classes of Th-cells and their functions. 2 + 2
25. What do you mean by Xenobiotics ? Which enzyme and co-enzyme is used for their metabolism ? 2 + 2
26. What do you understand by allergen and toxoids ? 2 + 2
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