2019

Part – II

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.

Answer *any* **two** questions, taking at least ***one*** question from each subgroup. 15×2=30

Sub-Group – A(a)

1. a) How cytosolic pyruvate are decarboxylated in eukaryotic cell?

   b) Discuss the process of glycogenesis with special reference to glycogenin. 6+6+3

2. a) Discuss the functions of retinoids in human body.

b) Describe the structure of fatty acid synthase with suitable diagram.

c) Describe the process of fatty acid synthesis mentioning the required factors. 6+6+3

3. a) Prepare a balanced diet chart for Indian pregnant mother.

b) Mention the causes, symptoms and nutritional management of marasmus.

c) What is PDCAAS value? 6+(2+3+2)+2

Sub-Group – A(b)

4. a) Discuss the process of Glyoxylate cycle.

b) Why microbial fermentation is important in industry?

c) Mention the unique features of cell wall of Gram positive and Gram negative bacteria. 6+3+(3+3)

5. a) Discuss the structure of MHC II and its importance in immunity.

b) How T cell–B Cell interaction occurs in immunity?

c) Describe briefly the classical pathway of complement system. 6+5+4

6. a) Discuss the process of acclimatization at high altitude.

b) How air pollution can be prevented technologically?

c) Describe the radiological hazards on human body. 5+5+5

Group – B

Answer any five, taking at least two from each group : 8×5=40

Sub-Group – B(a)

7. a) Hepatic secretion is necessary for lipid digestion – Justify it.

b) How and where chylomicron is formed ? 4+4

8. a) Draw a flow chart of Malate–Aspartate Shuttle path. Where does it occur?

   b) How peptides are hydrolysed by intestinal peptidases? (4+1)+3

9. a) Mention the oxidative decraboxylation reaction of TCA cycle in detail.

   b) How melanin is synthesized in skin? 4+4

10. a) Define Trophozoit and cryptozoit stage of plasmodium life cycle.

    b) How coronary heart disease can be prevented by a dietician? (2+2)+4

11. a) Define with example—(i) Pandemic disease (ii) Epidemic disease.

    b) Mention the nutrients required for preventive measures of (i) Xerophthalmia (ii) Osteomalacia (iii) Megoloblastic anaemia (iv) Dry beriberi. (2+2)+4

Sub-Group – B(b)

12. a) Discuss the role of nutrients required for bacterial growth.

    b) What are enrichment and selective media? 5+3

13. a) Define bacteriostatic, bacteriocidal and bacteriolytic agents.

    b) What is plasmid? (2×3)+2

14. a) Discuss two process of antigen-antibody reaction.

    b) Mention the functions of cylokines in defence system. (2+2)+4

15. a) Discuss the purpose and complications of Hypobaric Oxygen Therapy (HBOT).

    b) What is heat cramp? (3+3)+2

16. a) Discuss the process of Type-I hypersensitivity reaction.

    b) What is sandwich ELISA? 6+2

Group – C

Answer *any Five*, taking at least two from each sub-group : 4×5=20

Sub-Group – C(a)

17. a) Name two inhibitors of TCA cycle.

    b) Mention two catabolic role of TCA cycle intermediate. 2+2

18. Write notes on enzymatic antioxidants. 4

19. What happens due to abnormal accumulation of the following in human body?

    i) LDL–cholesterol

    ii) Uric acid. 2+2

20. a) What is Ponderal Index ?

    b) What are the key features of kwashiorkor? 2+2

21. a) What are kefone bodies?

    b) Mention the importance of Cori cycle. 2+2

Cycle – C(b)

22. Mention two modified brush border cells of gastro intestinal tracts and their functions. 2+2

23. a) What is functional food?

    b) Name two natural sweetners. 2+2

24. a) Mention the differences between Lag and Log phase of bacterial growth curve.

    b) Mention two macrophages with their location. 2+2

25. What is NK cells? Write down its functions. 4

26. Mention two sources of 'Pb' and two sources of 'As' poisoning in human. 2+2
