OLD

2015

Part I 3-Tier

PHYSIOLOGY

PAPER—II

(Honours)

Full Marks : 90

Time : 4 Hours

The figures in the right hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Group—A

Answer any *two* questions, taking at least *one* from each Sub-groups. 2×15

Subgroup—A(a)

1. (a) Describe the mechanism of secretion of HCl in stomach.

(b) Discuss the different types of movements of the small intestine. 8+7

2. (a) What is Redox Potential?

(b) Briefly discuss the flow of electrons through mitochondrial electron transport chain.

(c) Describe the structure of $F_0 - F_1$ ATP are in ATP synthesis. 2+7+6

3. (a) Describe the anabolic role of TCA cycle.

(b) Discuss the role of transketolase and transaldolase in pentose phosphate pathway. 7+8

Subgroup—A(b)

4. (a) What is operon? Discuss the regulation of gene expression in lac operon.

(b) Write a brief note on recombinant DNA technology. 2+5+8

5. (a) Describe how mRNA is translated into a polypeptide chain in a prokaryotic cell.

(b) Write briefly on gene mutation. 8+7

6. (a) Formulate a diet chart for a vegetarian lactating mother.

(b) Describe the source of vitamin A. What is night blindness ? 8+(2+5)

Group—B

Answer any *five* questions, taking at least *two* from each Sub-groups. 5×8

Subgroup—B(a)

7. What are phospholipids ? Describe the role of phospholipids in membrane fluidity and blood coagulation. 2+3+3

8. Discuss the mechanism of fat absorption. 8

9. Give the schematic representation of β-oxidation of saturated fatty acid in mitochondrial compartment. 8

10. What are exo- and endo peptidases. Describe the action of exopeptidases. 2+6

11. Name the end products of phosphorolytic and hydrolytic cleavage of glycogen. How are they formed? 2+6

Subgroup—B(b)

12. State the difference between Glycogeneses and Glycogenosis. Describe the inborn error of Tyrosine metabolism. 1+7

13. (a) Describe the source of Vit. B_{12}. What is megaloblastic anaemia?

(b) State the importance of dietary fibres. 2+3+3

14. (a) What is R.Q? Discuss its significance.

(b) What is A.C.U? (2+3)+3

15. Discuss the various types of DNA repair mechanism. 8

16. (a) What is Mendel's laws of heredity?

(b) Mention the features of genetic code. 4+4

Group—C

Answer any *five* questions, taking at least *two* from each Sub-groups. 5×4

Subgroup—C(a)

17. Write a brief note on gout. 4

18. State briefly the role of calcium in human body. 4

19. Describe transmethylation. 4

20. Write the steps of biosynthesis of creatine phosphate. 4

21. What is mutarotation? Why is the final value of mutarotation always fixed? 3+1

Subgroup—C(b)

22. What do you mean by linkage and crossing over? 2+2

23. Write a note on hypervitaminosis D. 4

24. Describe the role of promoter in initiation of transcription. 4

25. What are lactogenic amino acids. Why tyrosine is both glucogenic and lactogenic amino acid ? 1+3

26. Write the names of the disaccharides that can be formed from two molecules of glucose. Which of them is a nonreducing sugar ? 3+1
