

NEW
Part-III 3-Tier

2019

PHYSIOLOGY

(Honours)

PAPER—VI

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.

Group—A

Answer any two questions taking atleast one from each subgroup.

Sub Group—A(a)

1. (a) Write down the mode of action of steroid hormones with special reference to signalling pathway.
- (b) How T_3 and T_4 are synthesized in thyroid follicles ?
8+7
2. (a) Discuss with suitable diagram the formation of trilaminar germ disc from the zygote stage.

(Turn Over)

- (b) Describe any one pregnancy test. (8+4)+3
3. (a) Discuss the functions of suprachiasmatic nuclei as a bioclock.
- (b) How sleep wakefulness affects glucocorticoid biorhythm ?
- (c) Mention the functions of hCS. 8+4+3

Sub Group—A(b)

4. (a) Describe the process of transcription of RNA in prokaryotes.
- (b) Discuss briefly the types and processes of cloning. 9+(3+3)
5. (a) What is operon ? Discuss the regulation of lac operon.
- (b) Discuss in brief DNA damage and DNA repair. (2+7)+6
6. (a) What are meant by hardware and software of computer ?
- (b) Briefly discuss on parametric and non-parametric statistics with examples.
- (c) What do you mean by networking and website ? (3+2)+6+4

Group—B

Answer any *five* questions taking atleast *one* from each subgroup.

Sub Group—B(a)

7. Discuss elaborately the process of prevention of polyspermy in human with suitable diagram. 5+3
8. Discuss the hormonal control of initiation and maintenance of lactation. 3+5
9. Discuss the process of development of alimentary system in human embryo. 3+5
10. Discuss in brief the role parathormone and calcitonin in bone formation and resorption. 5+3
11. What is jet-lag ? How are the different endocrine rhythms modulated due to jet-lag ? 2+6

Sub Group—B(b)

12. Discuss shortly the lysogenic cycle in phage virus. 8
13. Discuss the role of vectors in recombinant DNA technology. What is the usefulness of 'YAC' over other prokaryotic vectors ? 3+5
14. Discuss in brief the process of translation in prokaryotes. 8
15. What do you mean by DNA micro-array ? Discuss its advantages as a research tool. 3+5
16. What are the differences between one-trial and two-trial 't'-test ? What do you mean by Skewness ? What is meant by error of inference ? 4+2+2

Group—BC

Answer any *five* questions taking atleast *two* from each subgroup.

Sub Group—C(a)

17. Write a brief note on estrous cycle. 4
18. Discuss the source and functions of ANF. 4
19. Discuss the role of glycogen in regulation of blood sugar level. 4
20. Write a short note on capacitation of human sperm. 4
21. Describe the synthesis of adrenal medullary hormones. 4

Sub Group—C(b)

22. Write the brief note on fermentation. 4
23. What is Spearman's rho ? Mention its importance in statistics. 4
24. Write short notes on null-hypothesis. 4
25. Write a brief note on the bio-informatics. 2+2
26. Discuss the production and utility of monoclonal antibodies. 4