

Total Pages—6

UG/II/PHY/H/III/17(New)

2017

PHYSIOLOGY

[Honours]

PAPER – III

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)

(7 Over)

1. (a) Discuss the origin, course, termination and functions of pyramidal tract.
(b) Define reflex arc with labelled diagram.
(c) What are withdrawal reflex and crossed extensor reflex ? $8 + 3 + (2+2)$
2. (a) How is the body temperature regulated in hot climate by sweat secretion ?
(b) What is hypothermia ? Describe the physiological changes that occur in extreme cold environment. $8 + (3 + 4)$
3. (a) Discuss the action of barbiturates on different organ systems.
(b) Write briefly the pharmacological properties of guanethidine and reserpine. $7 + (4 + 4)$

Subgroup – A(b)

4. (a) Describe the neurophysiological basis of visual acuity and discuss different factors influencing it.

(3)

- (b) Discuss the functions of olfactory epithelium as a chemo-sensory organ. (4+3)+8
5. (a) Describe the histological structure of retina with a neat and labelled diagram.
- (b) Describe the structure of organ of corti with a labelled diagram.
- (c) What is cochlear microphonics? 7+5+3
6. (a) What is $\dot{V}_{O_2 \max}$? State the factors affecting $\dot{V}_{O_2 \max}$.
- (b) Briefly describe the effects of exercise on cardiac output and respiratory rate. 7+(4+4)

GROUP – B

Answer any five questions, taking at least two questions from each Subgroup : 8 × 5

Subgroup – B(a)

7. Describe the physiological effects of hemisection of spinal cord. 8

8. (a) Write a note on triple response.
(b) What is the physiological basis of fever ? 4 + 4
9. (a) Distinguish between ED_{50} and LD_{50} .
(b) Describe the mechanism of action of propranolol. 4 + 4
10. Name the nuclei and functions of thalamus. 8
11. (a) What do you mean by upper motor neuron and lower motor neuron ?
(b) Write down the pharmacological action of antihistamine. 4 + 4

Subgroup – B(b)

12. Name the receptors of touch, pressure, pain and kinesthetic sensation and discuss the transduction in pacinian corpuscles. 4 + 4
13. (a) What is physical work capacity ?
(b) How is the bicycle ergometer employed to determine the physical work capacity ? 2 + 6

14. Define the aerobic and anaerobic metabolic source of energy in different physical work. 8
15. Prepare a diet chart for a sprint runner and a footballer. 4 + 4
16. (a) What do you mean by occupational hazards ?
- (b) Elucidate your idea about the application of anthropometry in ergonomics. 4 + 4

GROUP – C

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

Subgroup – C(a)

17. What are postural reflexes ? 4
18. Name the components and functions of basal ganglia. 2 + 2
19. What is sleep-wakefulness cycle ? 4
20. Briefly describe the role of spinal cord in regulation of body temperature. 4

21. What do you know about the bio-availability of drugs ? 4

Subgroup – C(b)

22. What is Weber-Fechner law ? 4

23. How does contact lens help to correct the error of vision ? 4

24. What is near response of vision ? 4

25. Give a brief idea of ergogenic aids. 4

26. Differentiate psychological and physiological fatigue. 4