2016

PHYSIOLOGY

[Honours]

PAPER – VI

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

GROUP – A

Answer any **two** questions taking at least **one** question from each Subgroup 15 × 2

Subgroup–A(a)

1. (*a*) What is EPOC ? Briefly discuss different parts of EPOC with the help of post exercise oxygen consumption curve.

(*b*) Distinguish between static and dynamic work mentioning the nature of muscle contractions associated to them.

(*c*) Critically discuss the changes of heart rate and blood pressure in graded work load.

$(2 + 4) + 4 + (3 + 2)$

2. (*a*) What is SD ? State the methods of computation of SD and SE.

(*b*) What is null-hypothesis ? What do you mean by type-I error of inference ?

(*c*) Distinguish between bar-diagram and pie-diagram. $(2 + 4 + 2) + (2 + 1) + 4$

3. (*a*) Discuss the basic principle and applications of spectrophotometer. How it can be differentiated from colorimeter ?

(*b*) Describe the process of seperating nucleus and mitochondria through the process of cell fractionation.

(*c*) What is RIA ? $(3 + 2 + 3) + (2 + 2) + 3$

Subgroup—A(b)

4. (*a*) Define acoustic noise. Distinguish PTS and TTS.

   (*b*) Discuss in brief the pathophysiological effects of sound pollution.

   (*c*) What is auditory reflex ? Elucidate your idea about PPD against acoustic noise.

   (2 + 3) + 5 + (2 + 3)

5. (*a*) What is fermentation ? Discuss briefly on Entner-Doudoroff pathway of bacterial metabolism.

   (*b*) State your idea about the nutritional requirement of bacteria.

   (*c*) Discuss on the growth curve of a bacteria.

   (2 + 5) + 4 + 4

6. (*a*) Briefly discuss different aspects of pharmacokinetics of a drug.

   (*b*) Write a short note on diuretics.

(*c*) Name two different types of NM blocking agents and state their mechanism of action. 6 + 4 + (2 + 3)

GROUP – B

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

Subgroup–B(a)

7. (*a*) Define anaerobic capacity of work.

   (*b*) Briefly discuss different principles and methods of physical training. 2 + 6

8. (*a*) What do you mean by normal probability distribution ?

   (*b*) With suitable example state the differences between parametric and non-parametric statistics. 2 + 6

9. (*a*) How can you open a new file in MS-Word ? Write the full form of BASIC and FORTRAN.

   (*b*) Write briefly about different components of hardwares found in a computer. (2 + 2) + 4

10. (*a*) What is ultrasonication ?

(*b*) Discuss the basic principle and applications of USG. 2 + (3 + 3)

11. Write short notes on : 4 + 4

(*i*) Occupational health hazards

(*ii*) MRI

Subgroup–B(b)

12. (*a*) What is SCUBA ?

(*b*) What is Caisson's disease ? State the preventive measures against hyperbaric effects on human body.

(*c*) What is photochemical smog ? 2 + (2 + 2) + 2

13. (*a*) How do you classify virus ?

(*b*) State how human insulin can be produced biotechnologically. 4 + 4

14. (*a*) Describe the mechanism of action of propranolol.

(*b*) State how drug toxicity can be measured. 4 + 4

15. (*a*) What is heat stroke ?

(*b*) Discuss briefly on causes and effects of water pollution. 2 + (3 + 3)

16. Write short notes on : 4 + 4

(*i*) Bioreactors

(*ii*) Adrenergic neurotransmission.

GROUP – C

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

Subgroup– C(a)

17. Briefly state your idea about implementation of ergonomics to improve the industrial productivity. 4

18. (*a*) Define ergonomics.

(*b*) What is blood doping ? 2 + 2

19. (*a*) What is central tendency ?

(*b*) What is kurtosis ? 2 + 2

20. Give a brief idea on hemodialysis. 4

21. Write a short note on PFI. 4

Subgroup– C(b)

22. State the physiological changes due to acclimatization to high altitude. 4

23. Write a short note on 'green-house effect'. 4

24. What is bioremediation ? 4

25. State how transgenic animals can be produced. 4

26. What do you mean by narcotic analgesics ? 4