2021

PHYSIOLOGY — HONOURS

Sixth Paper

Full Marks : 100

The figures in the margin indicate full marks.

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

Unit - 11

1. (a) State the basic concept of ergonomics.

(b) Discuss the effect of ergonomics on the restriction of occupational health hazards. 5+5

Or,

(a) Describe light, moderate and heavy work from the concept of physiological work.

(b) What is anthropometry? How anthropometry is applied in our daily life? 5+(2+3)

2. (a) What is physical fitness?

(b) Discuss the assessment of physical fitness by modified Harvard Step Test.

(c) What do you mean by 'warm up' and 'cool down'? 2+4+(2+2)

Or,

(a) Discuss the Principles of training.

(b) Discuss the impact of physical training on performance level with reference to respiratory changes. 5+5

3. (a) Describe the neural process of body temperature regulation in homeotherms.

(b) State any four important features of cutaneous circulation. 6+4

Or,

(a) What is insensible perspiration and core body temperature?

(b) Draw a label diagram of histological structure of skin. Mention the functions of skin. (2+1)+(4+3)

4. (a) What is meant by heat stress and heat strain?

(b) Describe immediate and delayed respiratory changes due to acclimatization to high altitude. (2+2)+6

Or,

(a) Discuss major physiological effects of cold environment on human body.

(b) Write in brief on acclimatization to cold. 6+4

5. (a) Describe the effect of arsenic and cadmium on human health.

(b) What are mutagens? (4+4)+2

Or,

(a) Describe the positive and negative gravity on circulatory system of human.

(b) Discuss the effects of carbon monoxide on human body and mention briefly the preventive measures. 5+(2½+2½)

Unit - 12

6. (a) Describe the different phases of bacterial growth curve and mention their significance.

(b) Briefly discuss the method of acid fast staining. State its importance. (4+2)+(3+1)

Or,

(a) Describe the cell wall structure of Gram positive bacteria.

(b) Describe the methods of prevention of food borne infection.

(c) Why bacterial spores are heat resistant? 5+4+1

7. (a) Discuss different steps of Glyoxalate cycle and state its significance.

(b) Describe the process of bacterial transformation. 5+5

Or,

(a) Define antibiotics. State the mechanism of action of any bacteriocidal antibiotic.

(b) Define Virion. Classify viruses based on nucleic acid composition and give examples.

(c) Describe with a diagram the structure of a bacteriophage. (1+3)+(1+2)+3

8. (a) Define toxoid.

(b) Differentiate between active and passive immunity.

(c) Describe the structure of a typical IgG antibody. 2+3+5

Or,

(a) Describe the alternative pathway of complement activation.

(b) Define immunogen. State any four requirements of a molecule for being an immunogen. 5+(1+4)

9. (a) Define drug agonist and antagonist with examples.

(b) State the uses of Salbutamol and Atenolol. 6+(2+2)

Or,

(a) Define first pass effect. How first pass effect affects bioavailability of a drug?

(b) What is dose response curve? State its characteristics.

(c) What do you mean by drug biotransformation? (1+2)+(2+3)+2

10. (a) Write in brief about histogram and bar diagram. Mention any two differences between them.

(b) Define sample and population.

(c) What is random sampling? (2+2+2)+(1+1)+2

Or,

(a) Describe the basic properties of normal distribution curve.

(b) Define degrees of freedom and Z score.

(c) Differentiate between parametric and non-parametric test. 4+(2+2)+2
