

2007

PHYSIOLOGY

PAPER-I

*Full Marks* : 100

*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 whenever necessary*

**Write the answers Questions of each Unit in separate books**

UNIT-I

Answer Q. No. 1 and any *two* of the following

1. Write short notes on any *two* of the following: 5 x 2
  - (i) Healthy indicators
  - (ii) Cohort study
  - (iii) Antioxidant nutrient
  - (iv) Prevention of cancer.

( *Tum Over* )

- (a) What is gout?**
- (b) 'Increased uric acid in the blood is not only the indication of gout.' Justify this statement.
- (c) Mention the metabolic changes, clinical features and management of gout.**
- (d) How does 'the recent changes in life-style' initiated several non-communicable disease in India? Illustrate your point with two such diseases currently prevalent in India. 2 + 3 + 7 + 8
3. **(a) Describe the role of adjustability, maturity, sociability and self evaluation in the formation of a mentally healthy person.**
- (b) Discuss the role of heredity and environment as causal factors of mental illness. 10 + 10**
4. (a) What do you mean by physical fitness? How does exercise relate to maintenance of physical fitness. Classify fitness with examples.
- (b) Why pre-exercise sugar loading is detrimental in athletic performance? (4+6+4)+6**
5. **(a) State in brief the structure of a community.**
- (b) What is family cycle? Explain the role of family in health and disease.

- (c) What do you understand by system approach of ergonomics. Explain 'goal of safety' and 'goal of productivity'. 3+7+10

UNIT-11

Answer Q. No. 1 and any *two* from the rest

1. Answer any *two* of the following questions : 5x2
- (a) Describe the relationship between COHb concentration and signs and symptoms of CO poisoning.
  - (b) How are greenhouse effect and thermosyphon effect utilized for solar water heater ?
  - (c) Mention the salient features of an ideal chelating agent.
  - (d) What are the importance and significance of horizontal and vertical epidemiological studies ?
2. (a) Give an account on the different types of **inorganic particulate matters**.
- (b) Describe how does combustion help in the pyrolytic formation of benzo-a-pyrene.

(c) State the effects of shoot particles on human body.

(d) Discuss the controlling **measures** for particulate **emissions**. 5+5+3+7

3. (a) What do you mean by 'solid waste'?

(b) State the importance of. recycling of solid **wastes**. **How do glass**, metal and plastic recycling differ from one another?

(c) Discuss the geophysical basis of geothermal energy.

(d) **Illustrate some** of the methods of **utilization of geothermal energy for hot water and electric power generation**. 2+(2+6)+3+7

(a) **State the relationship between half-life (  $T$  ) and the decay constant (  $X$  ) of a radioisotope.**

(b) **Differentiate between stochastic and non-stochastic effects of radiation on human body.**

(c) **How do cells and tissues differ in radio-sensitivity ?**

(d) **Discuss the principle of estimation of radiation by 'Film dosimeter badge'.** 4+5+7+4

5. (a) **Discuss** the toxic effects of pesticides on human health.
- (b) What are the common symptoms after arsenic exposure through drinking water ? What are the **possible preventive. against arsenic poisoning?**
- (c) State the **role of laccase** as the catalytic tool for the detoxification of soil. 8+8+4