2021

FOOD AND NUTRITION — GENERAL

Paper : GE/CC-2

(Elementary Physics)

Full Marks : 50

The figures in the margin indicate full marks.

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

1. Answer *any five* questions: 2×5
   (a) What are the differences between mass and weight?
   (b) Why are the lighter gases like hydrogen, helium etc. are rare in the earth's atmosphere?
   (c) A piece of camphor placed on water moves to and fro— Explain.
   (d) Cooking utensils are provided with bakelite or wooden handle— Why?
   (e) Explain the function of electrical 'Fuse'.
   (f) Differentiate between density and specific gravity.
   (g) Compare a common balance and a spring balance.

2. Answer *any two* questions:
   (a) A particle describes 200 cm in first 2 seconds and 220 cm in next 4 seconds, what will be its velocity after 7 seconds from starting point? 5
   (b) Define different methods of heat transmission. Explain working of a thermoflask. 3+2
   (c) What is an ammeter? What is the resistance of an ideal ammeter? In a conductor of resistance 100 ohm current measured by an ideal ammeter is found to be 60 mA. What is the applied voltage? 2+1+2
   (d) Explain briefly how heating is done in a microoven. 5

3. Answer *any three* questions:
   (a) Prove that the velocity of an artificial satellite in a circular orbit is given by $v = \sqrt{\frac{G+m}{R+h}}$, where the symbols have their usual meanings. 10
   (b) State the Ohm's law in relation to potential and current. What is resistance? On which factors resistance of a conductor depends? What is its unit? A high power electrical appliance corresponds to high resistance—is it true? Explain. 4+1+2+1+2
   (c) The freezer or cooling system is placed at the top of a refrigerator. — Explain how a cooling system works? 4+6
   (d) What is a storage cell? Why is it so called? Describe briefly the working of a lead-acid accumulator. 2+2+6
   (e) State Archimedes principle. How this method is used to find volume of a solid insoluble in water? An alloy of gold and silver weighs 25 gm and 23 gm in air and water respectively. Calculate the amount of gold and silver in the alloy. [Specific gravity of gold and silver are 19.3 and 10.7] 3+1+6

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