

SCIENCE AND TECHNOLOGY (PART I)

Time : 2 Hours) **QUESTION PAPER : OCTOBER-2009** (Max. Marks : 40

1. (A) Rewrite the following statements by selecting the correct options : 2

(i) The group in the modern periodic table contains alkaline earth metals.

- (a) I A (b) IIA (c) II B (d) IB

(ii) The relation between electricity and magnetism was first established by

- (a) Joule (b) Ohm (c) Oersted (d) Fleming

(iii) The calorific value of is the highest amongst fuels.

- (a) hydrogen (b) methane (c) LPG (d) biogas

(iv) In the CGS system, the unit of specific heat capacity is

- (a) kcal /kg°C (b) cal /kg°C (c) cal /g°C (d) kcal /kg°C

(B) Rewrite the second Column so as to match the first Column : 2

Column 'I'	Column 'II'
(i) Carbon dating	(a) Atom bomb
(ii) Nuclear fission	(b) Colour of light
(iii) Rod-shaped cells	(c) Treatment of tumour
(iv) Cone-shaped cells	(d) Archaeology
	(e) Intensity of light

(C) State whether the following statements are True or False. If false, correct the statements : 2

(i) Children use solar energy to fly kites.

(ii) The velocity of sound in moist air is lower than the velocity of sound in dry air.

(iii) When relative humidity of air exceeds 60% we feel that air is moist.

(iv) The SI unit of energy is the erg.

(D) Identify the odd man out : 2

(i) Hydrogen, Helium, Neon, Xenon.

- (iii) Compressed spring, Bullet fired from a gun, Flowing water, Car in motion.
(iv) Simple microscope, Compound microscope, Refracting telescope, Reflecting telescope.

2. (A) Give scientific reasons : (any two) 4

- (i) When a brass article is silver plated, it is used as cathode.
(ii) Mini hydroelectric power stations are preferred.
(iii) Most of the electrical appliances need earthing.
(iv) We use a pulley to draw water from the well.

(B) Distinguish between any two of the following : (any two points) 4

- (i) Groups and Periods.
(ii) Acid and Base.
(iii) Energy and Power.
(iv) Absolute humidity and Relative humidity.

3. (A) Solve the following examples: (any two) 4

- (i) Calculate the heat generated in a coil of resistance 4.18Ω in 5 minutes when 0.5 ampere current is passed across it.
(ii) A 30 HP car is moving with a uniform velocity of 54 km / h. Find the forward force exerted by its engine.
(iii) An object of mass 10 kg is lying 10 m above the ground. Calculate the potential energy possessed by the object.
(iv) Thorium of mass number 232 and atomic number 90 emits 3 α particles and 2 β particles and gets converted into radon. Find the mass number and atomic number of radon.

(B) Answer any one of the following questions 4

- (i) What is hypermetropia? How can it be corrected? Explain with figure.
(ii) Write a note on SONAR.

4. (A) Draw neat and labelled diagrams : (any two) 4

- (i) Production of α , β and γ radiations.
(ii) Simple Voltaic Cell.
(iii) Passage of light through a prism.
(iv) Hope's apparatus.

(B) Answer any one of the following questions : 4

- (i) Describe the four blocks of the modern periodic table based on electronic configuration of elements.
(ii) State the types of solutions and give one example each.

5. (A) Answer the following questions in short : (any four) 4

- (i) Define electrolysis.
(ii) What is direct current?
(iii) Give two names of metalloids.
(iv) What do you mean by the power of a lens?
(v) Give any two examples of renewable energy sources.
(vi) What are bifocal glasses?

(B) Answer the following questions : (any one) 4

- (i) Write a note on anodising technique.
(ii) State Ohm's law and give its limitations.