

Science and Technology 1

2009 March

School Level 10th SSC

Board Exam

Maharashtra State Board

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SCIENCE - I

Time : 2 Hrs.) **Question Paper : March 2009** (Max. Marks : 40)

Note : See to Question Paper March 2008.

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

(I) X-rays are

- (a) negatively charged particles (b) positively charged particles
(c) uncharged atoms (d) electromagnetic waves

(II) Solar converts solar energy into electricity.

- (a) cooker (b) dryer (c) heater (d) cell

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

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

(iv) possesses kinetic energy.

- (a) Running water (b) Water in the lake at sea level
(c) Water in a dam (d) Stone at the foot of a hill

(B) Rewrite the column II so-as to match the column I : (2)

Column I	Column II
(i) Reflection of sound	(a) Telescope
(ii) To observe distant object	(b) Anodising technique
(iii) Name plate	(c) Carbon dating
(iv) Archaeology	(d) Megaphone
	(e) Electroplating

(C) State whether the following statements are TRUE or FALSE : (2)

(i) Ions play an important role in life processes. (ii) The modern form of periodic law is based on the atomic weight of an element. (iii) Children use solar energy to fly kites. (iv) Energy is defined as the stored ability to do work.

(D) Fill in the blanks by choosing the correct option from bracket : (2)

(50, 17, 7, 25, 18, 34)

- (i) The number of periods present in the modern periodic table are
(ii) For hearing a distinct echo, the minimum distance of the reflecting surface from the source of sound must be meter.
(iii) Least distance of distinct vision is about centimeter.
(iv) In India, frequency of A. C. is cycles per second.

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

(i) Inert gases exist in the form of free atom. (ii) the commercial unit of power is different from the SI unit. (iii) Copper is found to get deposited at the cathode when current is passed through aqueous copper chloride. (iv) In rainy season, we should not touch the wall of a building.

(B) Answer any two questions from the following : (4)

- (i) Distinguish between acid and base (any two points.)
(ii) Define specific heat capacity and write its units in MKS and CGS system.
(iii) Distinguish between a kinetic energy and potential energy (any two points.)
(iv) Write a short note on ultrasonic sound.

Q. 3. (A) Solve the following numerical problems (any two) : (4)

- (i) If a 60 W electric bulb is lighted for 6 hours, how much electrical energy is consumed ?
(ii) Calculate the heat generated in a coil of resistance 41.8Ω (ohm) in 5 minutes when 0.5 ampere current is passed across it.

(iii) How much heat energy is required to raise the temperature of 2 kg. of water from 3°C to its boiling point at 100°C?

(iv) An energy of 2 J is used to lift a block of 0.5 kg. How high will it rise ? (Take $g = 10 \text{ m/s}^2$)

(B) Answer any one question : (4)

(i) What is refraction of light? State laws of refraction of light.

(ii) Write short notes on :

(a) Halogen group elements.

(b) Zigzag line in modern periodic table.

Q. 4. (A) Draw and label the diagram (any two). (4)

(i) Sound waves need a medium

(ii) Solar water heater

(iii) Simple voltaic cell

(iv) Human eye.

(B) Answer any one question : (4)

(i) Obtain an expression for equivalent resistance of three resistances connected in parallel combination. (ii) What are radio isotopes? Give any three uses of radio isotopes.

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

(i) Explain the term; Power of accommodation of eye. (ii) How many elements are present in fourth and fifth periods each ? (iii) State the principle of heat exchange. (iv) Write the constituents of biogas. (v) What is dispersion of light ? (vi) How does short circuit occur ?

(B) Answer any one question : (4)

(i) Describe the electrolysis of copper chloride considering the following points :

(a) Definition of electrolysis (b) diagram (c) Changes at the electrodes (d) Inference.

(ii) Deduce normality equation mathematically.