



SCIENCE I - Article 3

ENGLISH MEDIUM

Dattatraya Walke, School : Dr. Shirodkar High School, Parel.

Pre-Examination 'Q' papers expected Answers (contd..)

Use of X-rays - (Two uses 1/2 mark each)

- (i) X-ray photographs are used to detect fracture of bones or presence of foreign solid materials in a human body.
 - (ii) In industry X-rays are used in detecting flaws or cracks in metal casting.
 - (iii) Real diamonds can be distinguished from artificial ones by observing their characteristics under X-ray.
- (2) Ions as charge carriers in living systems -
- (i) The phenomena which are similar to the movement of ions in an electrolyte within an electrolytic cell are also found in living systems.
 - (ii) A living cell contains about seventy per cent by weight of water and about one per cent by weight of inorganic ions.
 - (iii) The cell sap plays the role of aqueous solvent and the inorganic ions the role of electrolytes.
 - (iv) The source of inorganic ions is the mineral components of diet of organisms. e.g. Calcium, iron, phosphorus etc.
 - (v) When minerals are absorbed by living cells, the ions are transported across the cell membrane.
 - (vi) Proper functioning of living cell requires high concentration of K^+ and very low concentration of Na^+ inside the cell.
 - (vii) Many phenomena in living organisms are controlled by ion transport across cell membrane.
 - (viii) e.g. a leaf closing response in mimosa plant, muscle contraction and transmittance of nerve signal in animals.

Q. 4 (A) Draw neat and labelled diagrams.
Diagram (1 mark) any two names (1 mark)

(1)

(2)

(3)

(4)

(B) (1) (2 marks)

Hypermetropia -

- (i) This defect is caused by slight flattening of the eyeball in the horizontal direction.
- (ii) Due to this the distance between the eye lens and the retina become less than the normal eye.
- (iii) A person suffering from this defect can see distant objects clearly but is unable to see nearby objects, even after straining the eye.
- (iv) The image of a distant object is formed on the retina but the image of the nearby objects is formed behind the retina. (1 mark)

Its correction (1 mark)

- (i) It can be corrected by using spectacles having convex lenses of suitable focal length.
- (ii) The convex lens produces convergence of the rays passing through it, so that the image of a nearby object is formed on the retina as shown in figure.

संपर्क : yashasvibhava2008@gmail.com

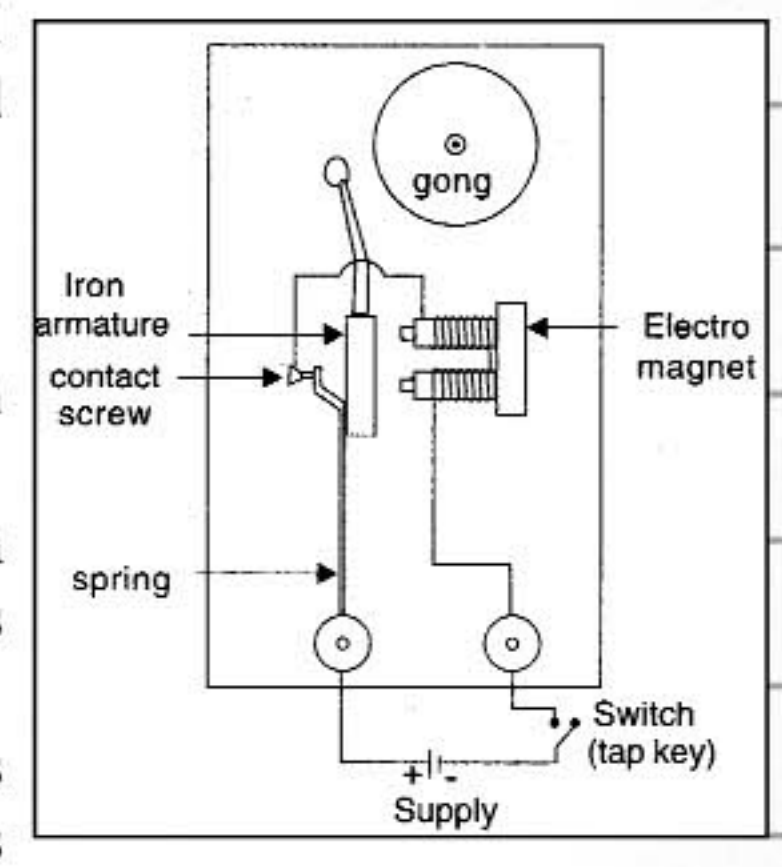
(2) Electric Bell

Construction: The electric bell consists of a gong, soft iron rod called armature and an electromagnet.

(1/2 mark)

Working:

- (i) A coil is wound on soft iron core.
 - (ii) When current passes through the coil, the iron core acquires magnetism.
 - (iii) The electromagnet attracts armature and the gong is struck.
 - (iv) Meanwhile the contact between armature and contact screw is lost and the circuit is broken.
 - (v) As there is no current in the circuit the electromagnet loses its magnetism and armature is pulled back.
- The cycle repeats and gong struck once again and the bell goes on ringing.



Q. 5 (A) Answer the following questions (1 mark each)

- (1) Sub atomic particles are - protons, neutrons, electrons, positrons etc.
- (2) Acids and bases in their aqueous solutions react with each other and produce salt and water. The resulting solution is neither acidic nor basic but is neutral. This reaction is known as neutralisation reaction.
- (3) When one joule of work is done in one second, the power used is one watt.
- (4) Principle of heat exchange - Heat lost by the hot body = heat gained by the cold body.
- (5) The scientists who classified elements on the basis of atomic mass number are Dobereiner, Newlands, Mendeleev.
- (6) The quantity of the substance expressed in grams numerically equal to molecular mass is termed gram mole.

(B) Answer any one question.

- (1) Causes of sound pollution (any four 1/2 mark each)
 - (i) Playing of transistor, record player and TV in full volume.
 - (ii) Noise in factory machines, looms, saw mills, domestic water pump etc.
 - (iii) Rattling of cars, trucks etc
 - (iv) Whistle of train and siren.
 - (v) Sound generated by loud speaker.

Measures of Noise Control (1/2 mark each)

- (i) The noise can be controlled by changing the operating system.
- (ii) By using ear play plug and protective caps to block the outer ear passage.
- (iii) To avoid the use of crackers which make sounds.
- (iv) Careful designing and layout of buildings and by using the sound absorbers at the time of construction.

(2) The examples of energy transformation (any four 1 mark each)

- (i) Electrical energy is converted in to mechanical energy in electric fans.
- (ii) Electrical energy is converted in to light energy in tube light.
- (iii) Electrical energy is converted into heat energy in iron.
- (iv) In crackers chemical energy is converted into heat, light and sound.
- (v) While charging a battery, the electrical energy is converted into chemical energy.
- (vi) In solar cell, solar energy is converted into electrical energy.

उद्याचा विषय : बीजगणित

लोकसत्ता

- यशस्वी भव !

दहावी अभ्यास मालिका



तुम्हाला हे माहित होतं का ?
पाणी दूषित करणारे घटक पाण्यात काही वर्षांपूर्वी जितके असायचे त्यापेक्षा हल्ली ते जास्त आढळतात.

फक्त अँक्वागार्ड टोटल द्वारे शिसं, किटकनाशकं, रसायनं, क्लोरीन आणि पाणी दूषित करणाऱ्या अन्य सर्व माहित असणाऱ्या घटकांपासून पिण्याचं पाणी मुक्त राहिल ह्याची हमी मिळवा.

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