

SUBJECT : INTEGRATED SCIENCE

Time : 2½ hrs.

M.M. : 80

General Instructions :

- (i) This paper consists of three sections - A, B and C. Do each part on a separate sheet.
- (ii) Marks are indicated against each question.
- (iii) Draw neat and well labelled diagrams wherever required.

SECTION-A (PHYSICS)

- Q1. Answer in one word or one sentence : (1x4=4)
- (a) A train travels at a speed of 120 km/h. What distance will it cover in 4 hrs?
- (b) Name the instrument used in vehicles to measure its speed. Also write the standard unit of speed.
- (c) Write the name of the colour that is seen at the centre of a rainbow.
- (d) The light falling on a wall is reflected back. What type of reflection is seen here?
- Q2. Fill in the blanks : (1x4=4)
- (a) In a distance-time graph _____ is represented on X-axis.
- (b) The to and fro motion of a swing is an example of _____ motion.
- (c) In _____ mirror the reflecting surface is curved outwards.
- (d) _____ measures time by the position of shadow cast by sun.
- Q3. Answer briefly : (2x4=8)
- (a) You are provided with two lenses (concave and convex) and a dictionary. To see the words in the dictionary clearly which lens would you use and why?
- (b) How do the words look in a plane mirror?
- (i) HOW (ii) ELKI

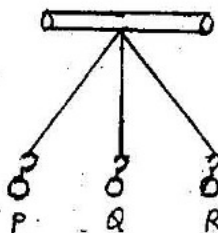
- (c) Represent the following on a distance-time graph
- a car moving in a crowded street
 - an aircraft flying with a constant speed
- (d) Which mirror is used as rear view mirror in vehicles? Why?

Q4. Answer the following :

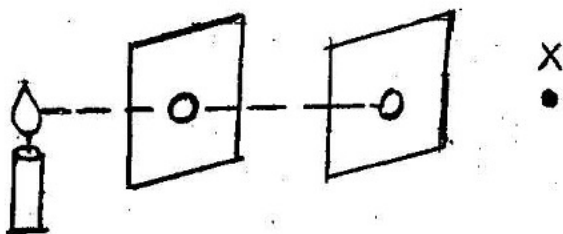
(3x2=6)

(a) In the given figure :

- Label the mean and extreme positions
- When do you say that the pendulum has completed one oscillation if it is released from point 'p'?



(b) Observe the following figure carefully and answer the questions given below :



- Will you get the light at point 'X'?
- Reason out your answer.
- Name the property of light shown here.

Q5. Answer in detail :

(5x1=5)

- The odometer of a car reads 4320 km at 6.30 p.m. What is the distance travelled by car if at 6.45 p.m. the odometer reading is 4350 km? Calculate the speed of car in km/min.
- If a pencil of length 25 cm is kept in front of a plane mirror at a distance of 10 cm away from it, then
 - What is the distance between the object and the image?
 - What is the height of image?

- (c) At what distance behind the mirror will the image of pencil be formed?

SECTION-B (CHEMISTRY)

Q1. Answer in one word or one sentence : (1x4=4)

- (a) Clarified water has a very low level of organic matter and suspended material but needs to be disinfected with chemicals. Name a chemical used to disinfect clarified water.
- (b) Ravi found eucalyptus trees planted all along sewage ponds in a WWTP. What is the significance of eucalyptus trees in a WWTP?
- (c) Define Selective breeding.
- (d) Name the type of toilets where human excreta is treated by earthworms and converted into a resource much needed for soil.

Q2. Fill in the blanks : (1x4=4)

- (a) Aeration adds _____ to clarified water.
- (b) The sludge is decomposed by the _____ bacteria.
- (c) Workers in the wool industry are at a risk of suffering from a disease called _____.
- (d) Unwinding of silk fibres from a cocoon is known as _____.

Q3. Answer briefly : (2x4=8)

- (a) Sericulture involves rearing of silkworms for obtaining silk. In which stage of its life cycle does a silkworm -

(i) feed on the plant leaves

(ii) form a cocoon

Sericulture is not considered an eco-friendly practice. Justify the statement.

- (b) Give reason :

(i) Shearing cannot be done throughout the year.

(ii) Soon after shearing, a shorn sheep is dipped in an antiseptic solution.

- (c) Chintan and Krishna are given two options to dispose off cooking oils and fats.

Option A - throw them in the dustbin

Option B - throw them in the drain

Chintan chose option B while Krishna preferred option A.

Who amongst the two has been wiser to choose the right option and why?

- (d) A complex mixture containing organic and inorganic impurities is sent to a waste water treatment plant. Separate the organic and inorganic impurities from the list of impurities given below :

tincan, bacteria, phosphates, urea, herbicides, faeces

Q4. Answer the following : (3x2=6)

- (a) (i) Explain an onsite human waste disposal technology other than the one that uses earthworms to treat excreta.

- (ii) Name the type of toilets used to dispose off sewage in aeroplanes where there is limited water supply.

- (b) Write the source of angora wool and pashmina wool and explain how the thick coat of hair is useful to wool-yielding animals.

Q5. Sewage treatment involves various processes. Name the devices used in physical treatment of sewage and mention use of each of them. (5x1=5)

SECTION-C (BIOLOGY)

Q1. Answer in one word or one sentence : (1x4=4)

- (a) Rainfall is measured by an instrument which is basically a measuring cylinder with a funnel on top to collect rainwater. Name the instrument.

- (b) Runjhun is suffering from diarrhoea due to excessive loss of water and salts from the body. Even before a doctor is consulted. what should be given to Runjhun as First Aid?

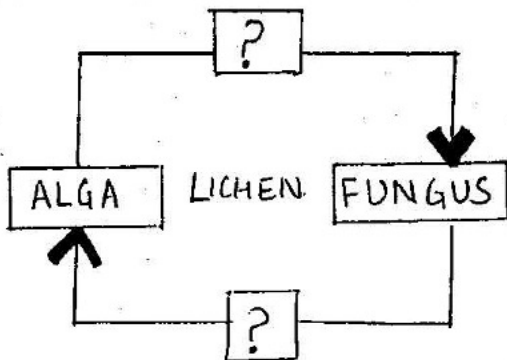
- (c) There are certain plants which lack chlorophyll and cannot make their food by photosynthesis. How do these plants acquire nutrients? Name this mode of nutrition.
- (d) 'X' is a thick-walled bag shaped like a flattened 'U' and is the widest part of the alimentary canal. Identify 'X'.

Q2. Fill in the blanks : (1x3=3)

- (a) _____ feet of penguins make them good swimmers.
- (b) In a _____ relationship both organisms are benefitted from each other.
- (c) Muscular sheet that forms floor of chest cavity is known as _____.

Q3. Answer briefly : (2x4=8)

- (a) Digestion of food completes in small intestine. Write the end products of digestion for the following :
- (i) Carbohydrates (ii) Proteins
- (iii) Fats
- (b) Adaptations help an organism to survive in its surroundings. How are tusks and large ears of elephant useful to it?
- (c) Lichen is an example of a relationship between an alga and a fungus.
- (i) Which of the two partners mentioned above performs photosynthesis? Why?
- (ii) Complete the flow chart given below :



- (d) Fish have specialised organs for breathing known as gills. Give the structural and functional importance of gills in aquatic organisms.

Q4. Answer the following : (3x2=6)

- (a) (i) Define cellular respiration.
(ii) State its two types and differentiate between them with the help of word equations.
- (b) An animal which is found in extremely cold climatic conditions has following adaptations. Give the significance of these adaptations for the animal -
- white fur
 - strong sense of smell
 - a layer of fat under the skin
 - long curved and sharp claws
 - two thick layers of fur
 - wide and large paws.

Q5. Answer the following : (5x1=5)

- Define breathing.
- Which of the following figures represents inhalation?
- Enlist the various steps involved in inhalation.
- A gas 'Y' released out during exhalation turns lime water milky. Name 'Y'.

