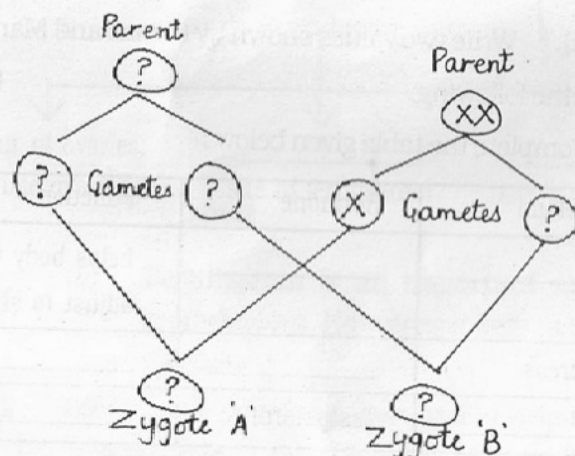


- (i) Vibhuti identified the organism 'B' as _____.
- (ii) Name and define the type of asexual reproduction that this organism undergoes.
- (iii) Draw and label the missing stages in the given figure.
- (c) Human body undergoes several changes at puberty which characterise an individual as male or female. State three changes taking place only in males and three only in females.

Q4. Answer the following:

(5)

- (a) The instructions for determining the sex of the baby are present in chromosomes. All human beings have 23 pairs of chromosomes in the nuclei of their cells. Two chromosomes out of these are X and Y chromosomes.
- (i) What is the term given to X and Y?
- (ii) Complete the given schematic representation of sex determination in humans.



- (iii) What will be the gender of the babies formed by the zygote A and zygote B?

SA2-VIII

2/2014

SUBJECT : INTEGRATED SCIENCE

M.M.: 80

Time : 2½ Hrs.

General Instructions :

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

PART-A (PHYSICS)

Q1. Answer in one word or one sentence: (1x5=5)

- (a) What are the byproducts of electrolysis of common salt?
- (b) Planets do not collide with each other while revolving around the Sun. Which force keeps them bound to the Sun?
- (c) Write any four English alphabets which show lateral inversion on reflection from a plane mirror.
- (d) Moon does not have light of its own. How are we able to see the Moon?
- (e) Give the full form of the following :
- (i) INSAT (ii) LED

Q2. Answer briefly: (2x4=8)

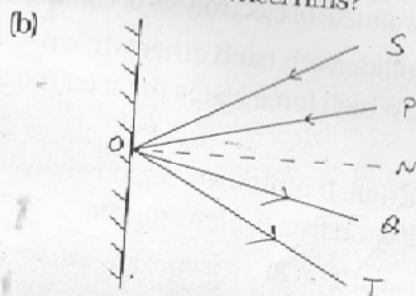
- (a) The moon appears to change its shape every night. After how many days a full Moon changes into a new Moon? Differentiate between a full Moon and a new Moon day.
- (b) Which effect of electric current is utilised for detecting the flow of current through a solution :
- (i) when a torch bulb is used?
- (ii) when a magnetic compass is used?
- (c) Instrument 'X' is used in submarines, tanks and also by soldiers in bunkers to see things outside.
- (i) Identify the instrument 'X'.
- (ii) How many mirrors are used in this instrument?
- (iii) On which principle does it work?

- (d) A jeweller sells cheap metal ornaments plated with gold as gold ornaments. Is this practice justifiable? Give reason. Why do gold plated ornaments become dull after few months?

Q3. Answer the following :

(3x3=9)

- (a) (i) Electroplating is one of the most common applications of chemical effects of electric current. Draw a setup that you will use to electroplate an iron key with copper.
(ii) Why does a new bicycle have shining handlebar and wheel rims?



- (i) What is the name given to the phenomenon illustrated in the above figure?
(ii) What is the angle of reflection, if OT is the reflected ray?
(iii) Identify the reflecting surface in the above figure and mention the characteristics of the image formed by it.

(c) Look at the given figure and answer the following questions:

- (i) Name the constellation the given figure represents.



- (ii) The position of which star can be located with the help of the given constellation. Why does this star appear to be stationary in the sky? Draw a diagram to show its location in the sky.

(2)

Q4. Answer in detail :

(1x5=5)

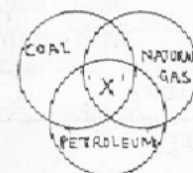
- (a) I am a common defect of an eye particularly found in old age due to which eye sight becomes foggy. What am I?
(b) At the junction of optic nerve and retina, there are no sensory cells present so no vision is possible at this spot. Name the spot. Explain the two types of sensory cells present on the retina.
(c) Aishwarya has blue eyes. What is the coloured part of the eye known as? Give its function.

PART-B (CHEMISTRY)

Q1. Answer in one word or one sentence :

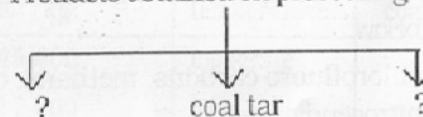
(1x5=5)

- (a) Study the given figure and name 'X'.



- (b) Why do coal miners use battery powered lamps rather than candle light, lanterns and other types of open fires to provide light inside the tunnels?
(c) Complete the following flow chart :

Products obtained on processing coal



- (d) To set fire to a combustible substance you have to heat it to a certain minimum temperature. What is this minimum temperature called?
(e) A thermal power plant can transform a beautiful lake into a dead zone. Justify the statement.

Q2. Answer briefly :

(2x4=8)

- (a) Nikita is reading a book in her balcony. Suddenly she sees fire at her neighbour's house in the kitchen. She immediately rushes and informs the old lady who is the only one there. Finding an overturned kerosene can that caused the fire, Nikita immediately opens the carbondioxide fire extinguisher and puts out the fire.

(3)

- (i) Why do you think Nikita used the carbondioxide fire extinguisher and not water?
- (ii) State two principles on which fire extinguishers are based.
- (b) Give reason for the following :
- (i) Centuries of wars have not been able to do what pollution has done to Taj Mahal.
- (ii) The 20th century was known as 'Age of Fossil Fuels'. The production and consumption of fossil fuels was at all time high but fossil fuels are non-renewable resources and cannot be produced in the lab.
- (c) Match column II and III so that they are in perfect match with column I.

Column I	Column II	Column III
(i) CFCs	sulphurdioxide	skin cancer
(ii) oxides of nitrogen	carbonmonoxide	reduces visibility
(iii) incomplete combustion	smog	lung damage
(iv) burning of petrol	ozone layer depletion	nervous damage or death

- (d) (i) Identify the greenhouse gases from the ones given below:
chlorofluoro carbons, methane, carbondioxide, nitrogendioxide
- (ii) What is meant by the 'Greenhouse Effect'?

Q3. Answer the following : (3×3=9)

- (a) The substance 'W' is a fossil fuel, also known as black gold. It occurs deep below the ground in certain areas of the earth. Another fossil fuel 'X' is found trapped above the deposits of 'W'. When 'W' is subjected to a process 'Y' then a number of different constituents are obtained which are put to different uses.
- (i) Identify 'W' and 'X'.
- (ii) Why is 'W' known as 'black gold'?
- (iii) Name and define process 'Y'?

- (b) (i) "Some of the rivers are on the verge of extinction or are in the list of endangered rivers". State any three factors responsible for the deteriorating state of rivers.
- (ii) What are the three ways by which water can be purified?
- (c) (i) Neha took two deflated balloons 'A' and 'B'. She inflated balloon A and tied it with a knot. She then added $\frac{1}{4}$ cup water in balloon B, inflated it and tied a knot. She placed balloons A and B directly beneath a candle flame. She observed that balloon A bursts immediately but balloon B does not. Explain Neha's observation.
- (ii) Draw a neat and well labelled diagram of a candle flame.

Q4. Answer the following : (5)

- (a) Study the table given below and answer the questions that follow :

Fuel	Calorific value KJ/kg	Ignition temperature	Products obtained on complete combustion
A	45,000	moderate	CO ₂ and SO ₂
B	17,000	high	carbon residue and CO ₂
C	40,000	moderate	CO ₂ and H ₂ O
D	55,000	very low	H ₂ O

- (i) Arrange the fuels given in the table in decreasing order of preference to be used in various activities requiring heat energy.
- (ii) Identify the following in the table :
- (1) a solid fuel
- (2) the fuel which has spontaneous combustion

- (b) Differentiate between rapid combustion and spontaneous combustion.

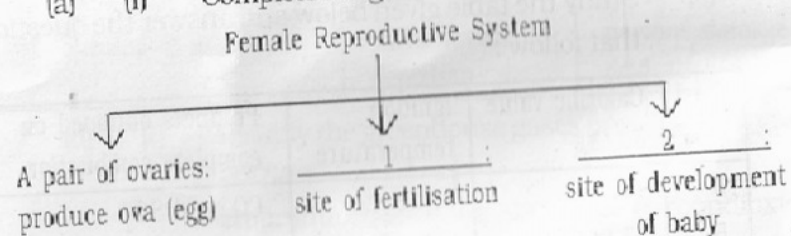
- (c) Mr Kumar goes to a car showroom. He is confused whether to buy a CNG model or a petrol one. Which model do you think he should buy. Give a suitable reason to support your answer.

PART-C (BIOLOGY)

- Q1. Answer in one word or one sentence : (1x4=4)
- Ranjan uses irrigation system 'X' on uneven land with sandy soil while Sujal prefers irrigation system 'Y' for watering his fruit plants. Identify systems 'X' and 'Y'.
 - AIDS is a disease caused by HIV. Expand HIV.
 - Metamorphosis is a process observed in the life cycle of frogs. Define metamorphosis.
 - Give reason : 'Farmers are encouraged to rotate leguminous crops with cereals like wheat.'

Q2. Answer briefly:

- (a) (i) Complete the given flow chart.



- (ii) Fertilisation is an important step of sexual reproduction. How does it help in inheritance of characters?

- (b) Differentiate between oviparous and viviparous animals. Why do aquatic organisms like fish and frogs lay many eggs at one time?
- (c) The reproductive phase of life in females is characterised by a process 'Q' which involves the following steps: maturation of egg, release of egg from the ovary, thickening of uterine wall, breakdown of uterine wall.
- (i) Identify the process 'Q'.

- (ii) What is the term given for the release of matured egg from the ovary?

- (iii) The onset and stoppage of the process 'Q' is called 'R' and 'S' respectively. Name 'R' and 'S'.

- (d) Manas and Manan went to a colony to do a survey about nutritional habits of adolescents and offered them to choose between chips, canned snacks and fresh fruits and vegetables. They found that most of the teenagers preferred chips and canned snacks over fresh fruits and vegetables. Manas and Manan collected all teenagers at a place and showed them posters, flash cards and balanced diet charts indicating the nutritional value of fruits, vegetables and other nutrients. They told them that chips and canned snacks though very tasty should never replace regular healthy and nutritious meal:

- (i) Define balanced diet.

- (ii) Write two values shown by Manas and Manan.

Q3. Answer the following:

(3x3=9)

- (a) Complete the table given below :

Endocrine Gland	Hormone	Function
(i) _____	_____	helps body to adjust to stress
(ii) Pancreas	_____	_____
(iii) _____	Testosterone	_____

- (b) Vibhuti observed permanent slides of an organism 'B' in different stages of its reproductive process.

