Global Indian International School

SINGAPORE | MALAYSIA | THAILAND | JAPAN | UAE | INDIA | VIETNAM

GLOBAL INDIAN INTERNATIONAL SCHOOL

PRE BOARD-1

2019-2020

SUBJECT :SCIENCE (Code 086)

Grade : X **Max. Marks : 80**

Date : 10/12/19 **Duration : 3 hrs**

General Instructions

i) All questions are compulsory.

ii) The time given at the head of this paper is the time allowed for writing the answers. An extra 10 minutes will be given for reading the question paper.

iii) This question paper contains 9 printed pages.

iv) Please check that this question paper contains 36 questions.

v) The question paper comprises three sections, A , B and C. You are to attempt all the sections.

vi) There is an internal choice in four questions of four marks each, three question of five marks .

vii) Question numbers 1 to 20 in Section-A is one-mark question and has to be answered in one word or in one sentence.

viii) Question numbers 21 to 30 in Section- B is three marks question and has to be answered in 30 words .

ix) Question numbers 31 to 36 in Section-C are five marks questions. These are to be answered in about 70 words each.

SECTION – A

I. Multiple Choice Questions:

1. If you are asked to select a group of two vegetables, out of the following, having homologous structures which one would you select?

(a) Carrot and radish (b) Potato and sweet potato

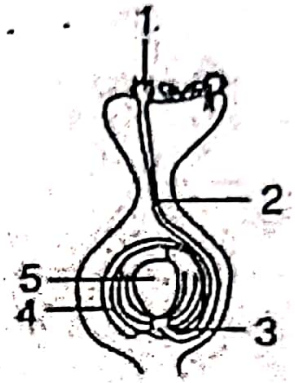
(c) Potato and tomato (d) Lady finger and potato 1

2. The major hormones involved in the maintenance of blood glucose levels are produced by the:

a) Liver (b) Pancreas (c) Spleen (d) Gall bladder 1

3. The diagram shows the cross-section through the carpel of a flower just before fertilisation. Where will the male and female gametes be just before fertilisation?

	Male gamete	Female gamete
(a)	1	5
(b)	1	4
(c)	2	4
(d)	3	5



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4. On adding acetic acid to solid hydrogen carbonate, a student observes the liberation of a

(a) greenish yellow gas with a pungent smell

(b) colourless and odourless gas

(c) yellow coloured and odourless gas

(d) colourless gas with the smell of rotten eggs 1

5. If water has magnesium sulphate dissolved in it, for testing its cleaning action, it is to be considered as :

(a) permanent hard water (b) hard water

(c) soft water (d) temporary hard water 1

6. A metal powder was added to dil. HCl and dil. NaOH solutions taken in separate test tubes. On making the contents react in both the test tubes, hydrogen gas was formed in both the cases. The metal used will be:

(a) Cu (b) Zn (c) Fe (d) Pb

OR

Silver articles become black on prolonged exposure to air. This is due to the formation of

(a) Ag_3N (b) Ag_3O (c) Ag_3S (d) Ag_3S and Ag_3N 1

7. When a 6V battery is connected across an unknown resistor there is a current of 150 mA in the circuit. The value of the resistance of the resistor is:

i) 4 Ω ii) 40 Ω iii) 400 Ω iv) 0.4 1

8. A convex mirror always produces an image which is

i) Real and inverted
ii) Real and erect
iii) Virtual and inverted
iv) Virtual and erect

1

9. A proton beam initially directed towards west is deflected towards north by a field which is perpendicular to the direction of the beam. The field is magnetic. What will be the direction of the field?

i) towards south ii) towards east iii) downward iv) upward 1

10. The resistance of a conductor is directly proportional to

i) Its area of cross-section ii) density iii) melting point iv) length 1

II. Assertion and reasoning questions:

DIRECTION : In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as:

(a) Both assertion and reason are true and reason is the correct explanation of assertion .
(b) Both assertion and reason are true but reason is not the correct explanation of assertion.
(c) Assertion is true but reason is false.
(d) Assertion is false but reason is true.

11. Assertion: Valves are present in the arteries.
Reason : Arteries carry oxygenated blood from heart to different body parts except pulmonary artery. 1

12. Assertion : Reflex actions are automatic and rapid responses to stimuli.
Reason : These actions are controlled by brain. 1

13. Assertion : Copper reacts with silver nitrate solution.
Reason : Copper is placed higher in the metal activity series than silver. Thus, it can displace silver from silver nitrate solution. 1

14. Assertion : Mendeleev did not leave any gap in his periodic table.
Reason : Gaps were necessary for unknown elements. 1

15. Assertion: Fuse is connected in series with the appliance.
Reason: If excess current flows, fuse gets melt and the circuit is broken so that the appliance stays safe. 1

III. Answer the following in one word or one sentence.

16. a. Where does digestion of fat take place in our body?
b. What is the mode of nutrition in human beings? 1

17. Why do mice whose tails were surgically removed just after birth for generations, continue to produce mice with tails? 1

18. Why are many thermal power plants set up near coal or oil fields? 1

19. Difference between short circuiting and overloading. 1

20. Define Rancidity and give one precaution to control it. 1

SECTION B

IV. Answer the following in brief:

21. a. Draw the diagram of human brain and label the part of the brain which controls.
i. Voluntary action ii. Involuntary action
b. What is the significance of the peripheral nervous system?

OR

(a) With labelled diagrams describe an activity to show that light and gravity change the direction that plant part grows in.
(b) Mention the role of the Auxin in plant growth. 3

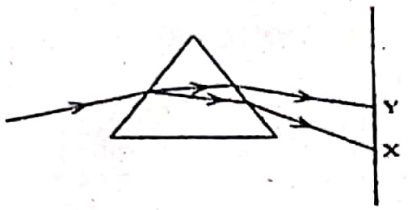
22. a. Name the site of exchange of material between the blood and surrounding cells in human being.

b. Draw a schematic representation of transport and exchange of Oxygen and Carbon dioxide in human body.

OR

a) Mention any two components of blood.
b) Trace the movement of oxygenated blood in the body.
c) Write the function of valves present in between atria and ventricles. 3

23. In the figure given below, a narrow beam of white light is shown to pass through a triangular glass prism. After passing through the prism, it produces a spectrum XY on the screen.



a) Name the phenomenon.
b) State the colours seen at X and Y.
c) Why do different colours of white light bend at different angles through a prism?

OR

a) What is visible spectrum?
b) Why is red used as the stopping light at traffic signals?
c) Two triangular glass prisms are kept together connected through their rectangular side. A light beam is passed through one side of the combination. Will there be any dispersion? Justify your answer. 3

24. An organic compound 'A' is an essential constituent of wine and beer. Oxidation of 'A' yields an organic acid 'B' which is present in vinegar. Name the compounds 'A' and 'B' and write their structural formula. What happens when 'A' and 'B' react in the presence of an acid catalyst? Write the chemical equation for the reaction. 3

25. What was "Chipko Andolan"? How did this 'Andolan' ultimately benefit the local people and the environment?

OR

What is 'Sustainable Management of Natural Resources'? Why is it necessary? Which one out of reuse and recycle, would you practice in your daily life and why? 3

26. A compound which is prepared from gypsum has the property of hardening when mixed with a proper quantity of water. Identify the compound. Write the chemical equation for its preparation. For what purpose is it used in hospitals? 3

27. The activities of man had adverse effects on all forms of living organisms in the biosphere. Unlimited exploitation of nature by man disturbed the delicate ecological balance between the living and non-living components of the biosphere. The unfavorable conditions created by man himself threatened the survival not only of himself but also of the entire living organisms on the mother earth. One of your classmates is an active member of 'Eco club' of your school which is creating environmental awareness amongst the school students, spreading the same in the society and also working hard for preventing environmental degradation of the surroundings

a. Why is it necessary to conserve our environment?

b. State the importance of green and blue dust-bins in the safe disposal of household waste.

c. List two values exhibited by your classmate who is an active member of Eco-club of your school?

OR

Your mother always thought that fruit juices are very healthy for everyone .One day she read in the newspaper that some brands of fruit juices in the market have been found to contain certain level of pesticides in them, She got worried as pesticides are injurious to our health.

a) How would you explain to your mother about fruit juices getting contaminated with pesticides?

b) It is said that when these harmful pesticides enter our body as well as in the bodies of other organisms they get accumulated and beyond a limit cause harm and damage to our organs.Name the phenomenon and write about it. 3

28. State the laws of refraction of light. If the speed of light in vacuum is $3X10^8$ ms $^{-1}$, find the speed of light in a medium of absolute refractive index 1.5. 3

29. a) Define electric power.

b) A bulb is rated at 330V- 110W. Calculate its resistance. Three such bulbs burn for 5 hours at a stretch. What is the energy consumed in kWh? Calculate the cost in rupees if the rate is 4 Rupees per unit.

OR

a) Define magnetic field. Name the rule to determine direction of the field around a straight conducting wire.

b) An electric generator has frequency of 50 Hz. Calculate the number of times the current changes its direction in 10 second.

c) What is the use of metallic brushes in an electric generator? 3

30. Write fully balanced equations for the following reactions.

i. Copper (II) oxide and dil. nitric acid

ii. Aluminium hydroxide and dil. sulphuric acid,

iii. Magnesium hydrogen carbonate and dil.hydrochloric acid.

OR

Write an equation each for the decomposition reactions, where energy is supplied in the form of heat, light, or electricity. 3

SECTION C

V. Answer the following:

31. (i) Draw a sectional view of Human female reproductive system and label the following parts :

a)That produces egg :

b) Fertilization takes place.

c) Fertilized egg gets implanted.

(ii) What is placenta? Mention its role during pregnancy.

OR

(i) Draw a neat labelled diagram of male reproductive system and label the following parts:

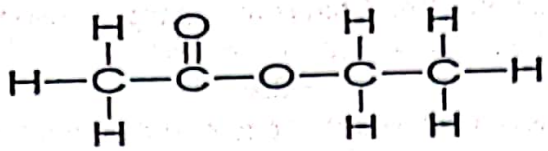
a) Production of sperms.

b) Provides low temperature for the formation of sperms.

c) Common passage for sperm and urine.

(ii) List any two methods of contraception used by humans and state the basic principle involved in each. 5

32. The structural formula of an ester is :



Write the structural formulae of the corresponding alcohol and the acid.

ii. (a) Mention the experimental conditions involved in obtaining ethene from ethanol.

(b) Write the chemical equation for the above reaction.

iii. Explain the cleansing action of soap.

OR

An organic compound 'X' on heating with conc.H_2SO_4 forms a compound 'Y' which on addition of one molecule of hydrogen in the presence of nickel forms a compound 'Z'. One molecule of compound 'Z' on combustion forms two molecules of CO_2 and three molecules of H_2O. Identify giving reasons the compounds 'X', 'Y' and 'Z'. Write the chemical equations for all the chemical reactions involved. 5

33. a) With the help of a flow chart explain in brief how the sex of a newborn is genetically determined in human beings. Which of the two parents, the mother or the father, is responsible for determination of sex of a child?

b) A man having blood group O marries a woman having blood group B and they have a daughter. What will be the blood group of the daughter?

c) "Evolution cannot be equated with progress". Justify this statement.

OR

A blue colour flower plant denoted by BB is cross bred with that of white colour flower plant denoted by bb.

a) State the colour of flower you would expect in their F1 generation plants.

b) What must be the percentage of white flower plants in F2 generation if flowers of F1 plants are self-pollinated?

c) State the expected ratio of the genotypes BB and Bb in the F2 progeny. 5

34. (I) Consider a conductor of resistance 'R', length 'L', thickness 'd' and resistivity 'ρ'. Now this conductor is cut into four equal parts. What will be the new resistivity of each of these parts? Why?

(ii) Find the resistance in terms of R if all of these parts are connected in:

(a) Parallel (b) Series

(iii) Out of the combinations of resistors mentioned above in the previous part, for a given voltage which combination will consume more power and why? 5

35. Atoms of seven elements A, B, C, D, E, F and G have a different number of electronic shells but have the same number of electrons in their outermost shells. The elements A and C combine with chlorine to form an acid and common salt respectively. The oxide of element A is a liquid at room temperature and is a neutral substance, while the oxides of the remaining six elements are basic in nature.

Based on the above information answer the following questions.

i. What could the element A be ?

ii. Will elements A to G belong to the same period or same group of the periodic table ?

iii. Write the formula of the compound formed by the reaction of element A with oxygen.

iv. Show the formation of the compound by a combination of element C with chlorine with the help of an electronic structure.

v. Which one of the given elements is likely to have the smallest atomic radius? 5

36. a) Define power of a lens? Give its SI unit.

b) Write down any two uses of converging lens.

c) An object 5 cm in length is held 25 cm away from a converging lens of focal length 10 cm. Draw the ray diagram and find the position, size and the nature of the image formed.

OR

a) What is meant by power of accommodation of eye?

b) Define myopia. Draw a neat ray diagram to show the image formation by a

i) Myopic eye ii) Corrected myopic eye.

c) A student cannot see the writings on a board clearly if he sits more than 5m away from the board. Calculate the power of the corrective lens required.

5