Pre board Examination, February 2018

SCIENCE

CLASS: X M. Marks:80

DATE : SET B Time: 3 Hrs

General instructions:

(i)The question paper comprises of two sections, A and B. You are to attempt both the sections.

(ii) All questions are compulsory. However, an internal choice will be provided in three questions of 3 marks each , two question of five marks each and one question (for assessing the practical skills) of two marks.

(iii) 1-2 questions of section A carry one mark each. These are to be answered in one word or in one sentence.

(iv) 3-5 question of section A carry two marks each. These are to be answered in about 30 words each.

(v) 6-15 questions of section A carry three marks each. These are to be answered in about 50 words each.

(vi) 16-21 questions of section A carry five marks each. These are to be answered in about 70 words each

(vii) Section B contains questions based on practical skills of two marks each

SECTION-A

1) Which part of the human body protects spinal cord? Name the part of the brain which controls posture and balance of the body. (1)

2) What is 'translocation' in plants? (1)

3) What kind of mirrors are used as rear view mirrors in vehicles? Explain with the help of a ray diagram. (2)

4) a) An element 'X' exists in two different forms and on reaction with oxygen forms an oxide XO_2. The oxide when dissolved in water turns blue litmus red. State whether element 'X' is a metal or a non-metal. Give the electron dot structure of this oxide.
b) Name the metal which is alloyed with copper to make bronze. (2)

5) What is bio diversity? Name the biodiversity hot spots. Why are they considered as biodiversity hot spots? (2)

6) (a) Define potential difference. What is its S.I unit. State the relation between potential difference, work done and charge.
b) State the essential condition for electric current to flow between two points of a circuit. (3)

7) State the cause of release of energy in a nuclear fission reaction. List two advantages of nuclear power generation. (3)

8) Name the three common defects of vision. What are their causes. Name the type of lens used to correct each of them. (3)

9) a) Describe an activity to trace magnetic field lines around a bar magnet with the help of a compass.

b) Mention the direction of magnetic field lines (i) inside a bar magnet and (ii) outside a bar magnet.

OR

When does a current carrying conductor kept in a magnetic field experience a maximum force? List the factors on which this force depend. State the rule which may be used to determine the direction of this force. (3)

10) a) Why do we need to balance a chemical equation?

b) Write balanced chemical equations for the following reactions.

(i) Hydrogen sulphide gas burns in air to give water and sulphur dioxide.

(ii) Sodium hydroxide reacts with sulphuric acid to form sodium sulphate and water. (3)

11) a) What is chlor alkali process? Write the chemical reaction taking place in the form of a balanced chemical equation.

b) If a solution change the colour of the litmus from red to blue what can you say about its p^H?

OR

a) Define indicators. Name two natural indicators from plants.

b) Write balanced equation for the reaction that takes place when sodium oxide reacts with water. How will this solution behave towards phenolphthalein and red litmus paper. (3)

12) An element 'X' is placed in the 13^{th} group and 3^{rd} period of the Modern Periodic Table. Answer the following questions stating reason for your answer in each case:

(a) Write the electronic configuration of the element 'X'

(b) Write the formula of the compound formed when the element 'X' reacts with another element 'Y' of atomic number 17.

(c) Will the oxide of this element be acidic or basic? (3)

13) What is reflex action? With the help of a labelled diagram trace the sequence of events which occur when we touch a hot object

OR

Raj's father has been advised by a doctor to reduce his sugar intake.

(i)Name the disease he is suffering from and name the hormone whose deficiency is?

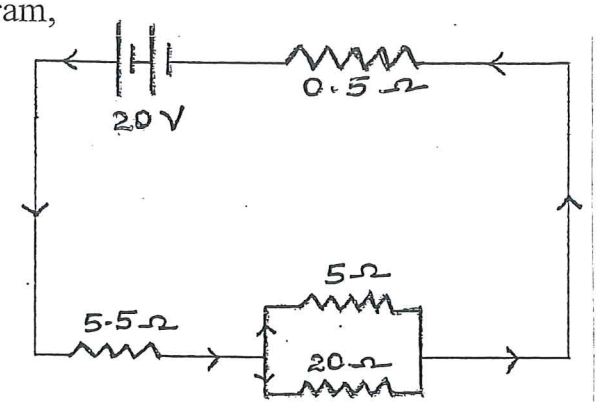
(ii)Identify the gland that secretes and mention the function of the hormone

(iii) Explain how the time and the amount of secretion of this hormone is regulated in human system (3)

14) List three factors with examples that provide evidences in favour of evolution in organisms and state the role of each in brief (3)

15) You were standing on the road side when you saw a family travelling in a car. An ambulance carrying a patient for dialysis was travelling behind the car. The driver of the car brought his car to one side of the road and allowed the ambulance to overtake.
(a) What value was shown by the driver?
(b) What is dialysis?
(c) What are the vehicles whom we should give pass while driving (3)

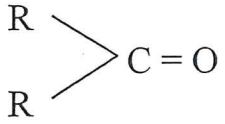
16) (a)Two metallic wires A and B are connected in parallel. Wire A has length' l' and radius' r' and wire B has length' 2l' and radius' 2r'. Compute the ratio of the total resistance of parallel combination and resistance of wire A.
(b) For the circuit shown in this diagram,

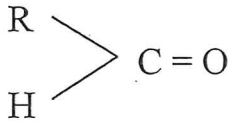


Calculate (i) the resultant resistance
(ii) the total current
(iii) the voltage across 0.5 Ω resistor. (5)

17) (a) What is meant by power of a lens ? Define its S.I unit .
(b) A real image 4/5 size of the object is formed 18cm from a lens.
Draw a ray diagram showing the image formation.
Calculate the power of the lens.
(c)Calculate the speed of light in water of refractive index 4/3. (5)

18) (a)Write the names of the functional groups in :

(i) 

(ii) 

(b) What is the next higher homologue of C_3H_7OH? What is its formula and what is it called?

(c) Write a chemical equation to represent the industrial application of hydrogenation.
(d) Write two differences between soaps and detergents. (5)

19) (a) Explain the reactions of different metals with hot water, cold water and steam. Give one example for each with a proper balanced chemical equation.
(b) Account for the following :
(i) Fe the most widely used metal is never used in its pure state.
(ii) From dilute hydrochloric acid zinc can liberate hydrogen gas but copper cannot.

OR

(a)Most of the metals acquire a dull surface when exposed to air. Name the chemical phenomenon responsible for this process.
(b) State the conditions under which iron articles rust. Design an activity with diagram to investigate the conditions necessary for rusting . Suggest two methods to prevent rusting of iron. (5)

20) (A)Mention any two differences between acquired traits and inherited traits. Which of the two is not passed on the next generation? Explain with the help of an example
(B) "It is possible that a trait inherited but may not be expressed." Give a suitable example to justify this statement (5)

21) (A)Write the functions of the following parts in human female reproductive system (i) Ovary (ii) Oviduct (iii) Uterus
(B) Describe the structure and function of placenta

OR

(a) Give one example each of a unisexual and a bisexual flower.
(b) How is the number of chromosomes of the parent cells maintained in the cells of the offsprings of sexually reproducing organisms?
(c) Mention the changes the flower undergoes after fertilization. (5)

SECTION -B

22) How does acetic acid react with sodium bicarbonate? Give chemical equation for this chemical change (2)

23)An iron nail is dipped in the solution of copper sulphate for about 30 minutes, state the change in colour observed. Give the reason for the change. (2)

24) In the experiment to trace the path of a ray of light through a triangular glass prism.

(a) if the emergent ray makes an angle of 35^0 with the second face of prism, then what is the angle of emergence?

(b) can the angle of deviation be zero and why?

OR

In the experiment to trace the path of a ray of light through a glass slab.

(a) if the angle of incidence is increased, how does the angle of refraction change?

(b) what relationship students work out when they measure the angle of incidence and angle of emergence? (2)

25) (a)What is the shape of the graph obtained by plotting potential difference applied across a conductor against the current flowing through it ?

(b) What does the slope of this V – I graph at any point represent? (2)

26) Give the four important steps for testing the given leaf for starch (2)

27) Given below are a short description of some parts of a seed. Write the name of related part –

(i) Dark coloured protective covering

(ii) Large broad thick leaves

(iii) The axis to which two cotyledons are attached

(iv) A small opening on the seed through which water enters the seed. (2)