LIONS SCHOOL, MIRZAPUR
PRE-BOARD EXAM (2020-2021)

CLASS- X TIME: 3HRS
SUB- SCIENCE M.M.:-80

General Instruction:

1. All questions are compulsory.
2. Marks are given against each question.

Q.1 What is the magnification of the images formed by plane mirrors and why? (1)

Q.2 Draw a ray diagram to show the path of the reflected ray corresponding to an incident ray of light parallel to the principal axis of a convex mirror and show the angle of incidence and angle of reflection on it. (1)

Q.3 List two possible ways in which a concave mirror can produced a magnified image of an object placed in front of it. State the difference, if any, between these two images. (1)

OR

What is meant by power of a lens? Define its SI unit.

Q.4 A charged particle enters at right angle into a uniform magnetic field as shown in fig. 1. What should be the nature of charge on the particle if it begins to move in a direction pointing vertically out of the page due to its interaction with the magnetic field? (1)

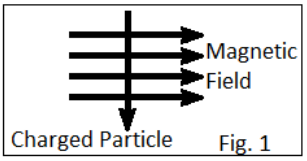

Fig. 1

Q.5 State the direction of magnetic field in the given fig. 2. (1)

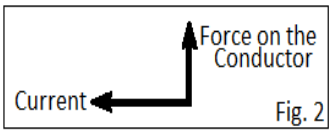

Fig. 2

Q.6 How much current will an electric bulb draw from 220 V source if the resistance of the bulb is 1200 Ω? If in place of bulb, a heater of resistance 100 Ω is connected to the sources, calculate the current drawn by it. (1)

OR

A given length of a wire is doubled on itself and this process is repeated once again. By what factor does the resistance of the wire change?

Q.7 Write the chemical name and chemical formula of the salt used to remove permanent hardness of water . 1

Q.8 What happen when Gypsum is heated ? 1

Q.9 What is an Indicator? 1

Q10. Which organ act as pump in the circulatory system?. 1

Q11. Why the small intestine of herbivores is larger than carnivores? 1

Q12. Give reason why a food chain can not have more than four trophic level. 1

Q13. State the roll of bile in digestion of food. 1

ASSERTION REASON QUESTION (1X3=3)

Q14. Assertion; Less number of individual present in lower trophic level.

Reason; Flow of energy is inverted 1

Q15. Assertion; nephron is filtration unit of kidney

Reason; nephron help in control and coordination 1

Q.16 Assertion (A) Sodium hydroxide reacts with zinc on heating to produce hydrogen gas . 1

Reason ® Acids reacts with active metals to produce hydrogen gas.

(i) Both (A) and ® are true and ® is the correct explanation of (A) .

(ii) Both (A) and ® are true ,but ® is not the correct explanation (A) .

(iii) (A) is true but ® is false.

(iv) (A) is false but ® is true .

VALUE BASED QUESTIONS-

Read the passage and answer the following questions:-

Q.17 Read the following and answer any four questions. (1x4=4)

The reflecting surface of a spherical mirror forms a part of a sphere. This sphere has a centre. This point is called the centre of curvature of the spherical mirror. It is represented by the letter C. Note that the centre of curvature is not a part of the mirror. It lies outside its reflecting surface. The centre of curvature of a concave mirror lies in front of it. However, it lies behind the mirror in case of a convex mirror.

1. Convex mirror always produce
    a) Real image
    b) Real and virtual image
    c) Virtual image
    d) None of these
2. Concave mirror produces
    a) Only real image
    b) Only virtual image
    c) Real and virtual image
    d) None of these
3. When an object is placed in front of convex mirror then image
    a) Magnified
    b) Diminished
    c) Same size
    d) None of these
4. When object is placed between pole and focus of concave mirror then image
    a) Real image
    b) Virtual image
    c) Real and inverted
    d) None of these

Q.18 Read the following and answer any four questions: (1x4=4)

Magnetic field is a quantity that has both direction and magnitude. The direction of magnetic field is taken to be the direction in which north pole of a compass needle moves inside it. Therefore it is taken by convention the field lines emerge from north pole and merge at the south pole in side the magnet, the direction of field lines is from its south pole to its north pole. Thus magnetic field lines are closed curves.

1. The unit of magnetic field is
    a) Weber
    b) Tesla
    c) Ampere-meter square
    d) None of these
2. One tesla is equal to
    a) 10^2 gauss
    b) 10^4 gauss
    c) 10 gauss
    d) None of these
3. The magnetic field line inside the solenoid are
    a) Non-uniform
    b) Uniform
    c) Curved
    d) None of these
4. Magnetic field lines around a straight current - carrying conductor is
    a) Circular concentric
    b) Straight electric lines
    c) Parallel
    d) None of these

Read the passage and answer the following questions:-

Q.19 - Gold is a yellow, shining metal. It does not corrode when exposed to atmosphere because it is a highly unreactive metal .Gold does not tarnish and retains its lusture for years. Though gold is highly resistant to corrosion but the shine of gold ornaments decreases with time and they become somewhat dull . Such gold ornaments are polished by jewellers to make them glitter again by dipping them in a solution.

(i) - Which of the following metal is an unreactive ? 1

(a) Na (b) K (c) Au (d) Al

(ii) Which of the following metal can not displace the copper? 1

(a) Magnesium (b) gold (c) sodium (d) aluminum

(iii) Which of the following metal is not resistant to corrosion? 1

(a)gold (b) iron (c) silver (d) platinum

(iv) Which of the following metal cannot be displaced by Pb ?

(a) gold (b) copper (c) silver (d) zinc 1

Q20. 1X4=4

Read the passage and answer the following questions:-

The process of releasing energy from food called respiration. energy produced during respiration are stored in the form of ATP. mitochondria are the site for aerobic respiration in cell.

1. The breakdown of pyruvate to carbon di oxide, water and energy take place in
   (a)Cytoplasm
   (b)Mitochondria
   (c)Chloroplast
   (d)Nucleus

2. During respiration energy released in form of

   (a) NADP

   (b) ATP

   (c)ADP

   (d) FTP

3. During exercise muscle cramp due to deposition of

   (a) Acetic acid

   (b)Butyric acid

   (c) Lactic acid

   (d) Formic acid

4. Respiratory organ in human is

   (a) Lungs

   (b) Trachea

   (c) Gills

   (d) Trichomes

Q.21 Draw a ray diagram to show the refraction of light through a glass prism. Mark on it : (2)

1. The incident ray,
2. The emergent ray and
3. The angle of deviation.

Q.22 The wattage of a bulb is 24 W when it is connected to a 12 V battery. Calculate its effective wattage if it operates on a 6 V battery (Neglect the change in resistance due to unequal heating of the filament in the two cases). (2)

Q.23- What is homologous series? Explain with suitable example. 2

Q.24 - What are the two properties of carbon which lead to the huge number of carbon compounds we see around us. 2

Q25. Define double circulation also mention its advantages in bird and mammals. 2

Q26. Draw the structure of open and closed stomata. 2

Q.27 The image of a candle flame placed at a distance of 30 cm from a spherical lens is formed on a screen placed on the other side of the lens at a distance of 60 cm from the optical centre of the lens. Identify the type of lens and calculate its focal length. If the height of the flame is 3 cm, find the height of its image. (3)

Q.28- a. Explain the formation of calcium chloride with the help of electron

dot structure

(Atomic no. : Ca =20, Cl = 17)

b. Why do ionic compounds not conduct electricity in solid state but conduct electricity in molten and aqueous state ? 3

Q. 29 – Give one example of each: 3

(a) Thermal decomposition reaction.

(b) Electrolytic decomposition reaction.

(c) Photo-decomposition reaction.

Q. 30 –(a) State the modern periodic law .

(b) State Mendeleev`s periodic law.

(c) State any two merits of modern periodic table . 3

Or

An element X has three electron shells with 5 electrons outermost shell .Predict the following about the element.

(i)The period in which it is located.

(ii) The group in which it is located.

(iii) Its atomic number.

Q31. What is law of independent ashortment? With the help of suitable example shows phenotypic ratio in F2 Generation of this laws. 3

Or

Shows sex determination in human depend on father not mother?

Q32. (a) State two advantages of using disposable paper cup over disposable plastic cup.
(b) What is meant by incineration? 2+1

Q33. Discuss the process of breathing in human in detail. 3

Q.34(a) Through same current flows through the electric line wires and the filament of bulb, yet only the filament glows. Why?
(b) The temperature of the filament of bulb is 2700^{o}C when it glows. Why does it not get burnt up at such high temperature?
(c) The filament of an electric lamp, which draws a current of 0.25 A is used for four hours. Calculate the amount of charge flowing through the circuit.

(d) An electric iron is rated 2 kW at 220 V. Calculate the capacity of the fuse that should be used for the electric iron. (5)

OR

(a) Describe an activity to demonstrate the pattern of magnetic field lines around a straight conductor carrying current.
(b) State the rule to find the direction of magnetic field associated with a current carrying conductor.
(c) What is the shape of a current carrying conductor whose magnetic field pattern resembles that of a bar-magnet?

Q.35– (a) Explain the preparation of plaster of paris with the help of chemical reaction. Also give its two uses. 2

(b) A gas X is passed on the slaked lime to produce a compound Y which is used in the Sterilization of drinking water and preparation of chloroform. Identify X and Y also write Its chemical name and formula. 3

Or

Explain the following

(a) Strong acid
(b) Organic acid
(c) Water of crystallization
(d) Anhydrous salt
(e) Indicator

Q36.(a) Draw a labelled diagram of flower showing its various parts.
(b)Describe the process of fertilization in flower.
(c)How do insect help in cross pollination? 2+2+1