JAIPUR EDUCATION PLUS
Not Just Education but Education Plus....
(P.No. 51, First floorLane No. 3, Moti Nagar, Queen's Road)
Mob. : 7615012588, 9929544574
Email: jaipureducationplus@gmail.com
www.jaipureducationplus.com

Time allowed: 3 hours Maximum Marks: 90

General Instructions:

a) All questions are compulsory.
b) The question paper comprises of two sections, A and B. You are to attempt both the sections.
c) Questions 1 to 3 in section A are one mark questions. These are to be answered in one word words each.
e) Questions 7 to 18 in section A are three marks questions. These are to be answered in about 50 words each.
f) Questions 19 to 24 in section A are five marks questions. These are to be answered in about 70 words each.
g) Questions 25 to 27 in section B are 2 marks questions and Questions 28 to 36 are multiple choice questions based on practical skills. Each question of multiple choice questions is a one mark question. You are to select one most appropriate response out of the four provided to you.

Section A

1. Why does a little addition of carbon in iron make it more useful?
2. Name the excretory unit of kidney.
3. Why is tungsten metal selected for making filaments of incandescent lamp bulbs?
4. A calcium compound which is a yellowish white powder is used as a disinfectant and also in textile industry. Name the compound. Which gas is released when this compound is left exposed to air?
5. Name the ovarian hormones and give the function of any one of them.
6. What is the difference between direct and alternating currents? Write one important advantage of using alternating current.
7. Balance the ionic equation:
   (a) $Cu(s) + Ag^{+} \longrightarrow Cu^{2+} + Ag$
   (b) $Al + H^{+} \longrightarrow Al^{3+} + H_2$
   (c) $Fe^{3+} + Cr \longrightarrow Fe^{2+} + Cr^{3+}$
8. Write one equation each for decomposition reactions where energy is supplied in the form of heat, light or electricity.
9. What is meant by refining of metals? Describe the electrolytic refining of copper with a neat labelled diagram.

10. Give reasons:
    (a) Germanium is called a metalloid.
    (b) Zirconium is known as a strategic metal.
    (c) Nitrogen in used to preserve food.
11. State reasons for the following:
    (a) Aluminium oxide is called an amphoteric oxide.
    (b) Sodium and potassium metals are kept immersed under kerosene oil.
    (c) Hydrogen gas is not evolved when most metals react with nitric acid.
12. How are the lungs designed in human beings to maximise the area for exchange of gases?
13. How are fats digested in our bodies? Where does this process take place?
14. Draw a diagram showing endocrine glands in a human male body. Label the following glands on it:
    (a) Pituitary (b) Thyroid (c) Adrenal (d) Testes
15. Two metallic wires A and B are connected in second wire A has length l and radius r, while wire B has length 2l and radius 2r. Find the ratio of total resistance of series combination and the resistance of wire A, if both the wires are of same material?
16. Aslam is a welder by profession who was working at Mohan's house. After making a 'railing' by using electric welding with naked eyes, Aslam was using a grinder on it to smoothen the welding joints. Just them some particles fell into Aslam's eye. He started crying with pain. Mohan hired an auto and took him to an eye hospital, doctor used a device connected to two electric wires to remove the particles form Aslam's eye. Aslam asked Mohan what had fallen into his eye and what device was used by the doctor to remove that particle from the eye. Being a science student of class X, Mohan explained everything to Aslam and asked him to be careful in future.
    Read the above passage and answer the following questions:
    (a) What could be the particle fell into Aslam's eye?
    (b) What device was used by the doctor to remove the particle and how it worked?
    (c) What values are shown by Mohan during this episode?

    [Value Based Question]
17. Explain the difference between nuclear fission and nuclear fusion reaction with examples. Give reason why the energy due to fusion is not being used to meet our day to day energy needs?
18. With the help of a labelled diagram, describe the working of a solar water heater.
19. With the help of an activity, explain that hydrogen and oxygen are released when electric current is passed through water.

Or

(a) Crystal of copper sulphate are heated in a test tube for some time:
    (i) What is the colour of copper sulphate crystals before heating and after heating?
    (ii) What is the source of liquid droplets seen on the inner upper side of the test tube during the heating process?

(b) A metal 'X' when dipped in aqueous solution of aluminium sulphate no reaction is observed whereas when it is dipped in an aqueous solution of ferrous sulphate, the pale green solution turns colourless. Identify the metal 'X' with reason.

20. (i) Define the term alloy and amalgam. Name the alloy used for welding electric wires together. What are its constituents.

(ii) Name the constituents of the following alloys:

(a) Brass (b) Stainless steel (c) Bronze

State one property in each of these alloys, which is different from its main constituents.

Or

What method of concentration of ore is preferred in each of the following cases and why?

(i) The ore has higher density particles interspersed with a large bulk of low density impurities.

(ii) The ore consists of copper sulphide intermixed with clay particles.

(iii) Give an example of amalgam.

21. Describe double circulation in human beings. Why is it necessary?

Or

(i) Name the blood vessel that brings deoxygenated blood to human heart.

(ii) Which chamber of human heart receives deoxygenated blood?

(iii) Explain how deoxygenated blood from this chamber is sent to lungs for oxygenation.

22. (a) Define electrical energy with S.I. unit?

(b) A house hold uses the following electric appliance

(i) Refrigerator of rating 400w for ten hour each day.

(ii) Two electric fans of rating 80w each for twelve hours each day.

(iii) Six electric tubes of rating 18w each for 6hours each day.

Calculate the electricity bill of the household for the month of June if the cost per unit of electric energy is Rs. 3.00.

Or

Explain the following:

(i) Why is the tungsten used almost exclusively for filament of an electric lamp?

(ii) Why are the elements of electric heating devices, such as bread-toaster and electric irons, made of an alloy rather than a pure metal?

(iii) Why is the series arrangement of appliances not used for domestic circuits?

(iv) How does the resistance of a wire vary with its area of cross-section?

(v) Why are copper and aluminium wires usually employed for electric energy transmission?

23. What is electromagnetic induction? Give two methods of inducing electric current in a coil. Explain each method with the help of diagram.

Or

Draw a labelled diagram of domestic circuit. What is the importance of earthing in a circuit?

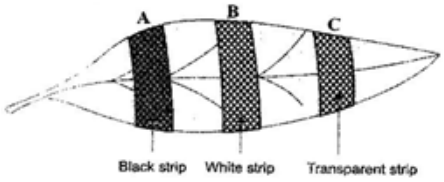
24. State the principle on which an electromagnet works. Describe an activity to make an electromagnet. Give two uses of electromagnet.

Or

Describe an activity to draw magnetic lines of force around a current carrying (a) straight conductor, (b) circular loop.

Section B

25. When red litmus paper is added to limewater, then what will be the change in litmus paper? Give reason. Write the chemical formula of limewater also.
26. A destarched leaf on a potted plant was covered with black (A), white (B) and transparent (C) strips of paper as shown in the figure.

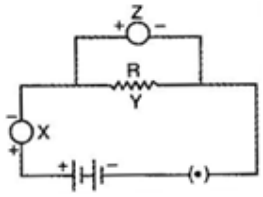


After six hours to exposure to sunlight the leaf was removed from the plant and tested for starch.

(a) What changes will be observed?

(b) Justify your answer.

27. A student draw the following circuit diagram for the experiment on studying the dependence of current (I) on potential difference (V) across a resistor. What are the parts labelled X, Y and Z in this diagram respectively? Justify your answer also.



28. A drop of liquid sample was put on the pH paper, paper turned blue. The liquid sample must be of:

(a) Lemon Juice (b) HCl

(c) Sodium bicarbonate (d) Ethanoic acid

29. When SO_2 gas is passed through acidified $K_2Cr_2O_7$ solution:

(a) The solution becomes green due to formation of K_2SO_4.

(b) The solution becomes green due to formation of $Cr_2(SO_4)_2$.

(c) The solution becomes yellow due to formation of K_2SO_4.
(d) The solution becomes red due to formation of $Cr_2(SO_4)_2$.

30. SO_2 gas should not be inhaled because:
    (a) It is poisonous.
    (b) It is acidic in nature.
    (c) It is lighter than air.
    (d) It is pungent smelling.
31. Which hormone brings about development of mammary gland?
    (a) Estrogen (b) Progesterone (c) Relaxin (d) Oxytocin
32. Junctions of two neurons in called.
    (a) Synapse (b) Synapsis (c) Joint (d) Junction

33. A wire of resistance R is cut into five equal pieces. These pieces are connected in parallel and the equivalent resistances of the combination are R'. Then the ration $\frac{R}{R'}$ is
    (a) $\frac{1}{5}$
    (b) 5
    (c) $\frac{1}{25}$
    (d) 25

34. A metallic conductor has loosely bound electrons called free electrons. The metallic conductor is
    (a) negatively charged
    (b) positively charged
    (c) neutral
    (d) Either positively charged or negatively charged

35. If the key in the arrangement is taken out (the circuit is made open) and magnetic field lines are drawn over the horizontal plane, the lines are:
    (a) concentric circles.
    (b) elliptical in shape.
    (c) straight lines parallel to each other.
    (d) concentric circles near the point O but of elliptical shapes as we go away from it.
36. The main constituent of CNG is
    (a) butane
    (b) methane
    (c) ethane
    (d) propane