



DAV NANDRAJ PUBLIC SCHOOL

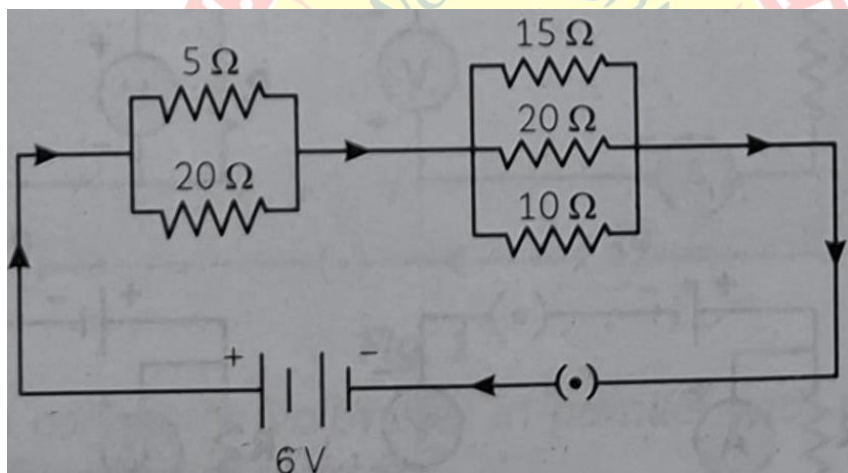
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FREQUENTLY ASK QUESTIONS IN BOARD EXAMINATION (X)

SUBJECT: SCIENCE

PHYSICS

- 1.a) What is meant by the series combination and parallel combination of resistors?
b) In the circuit diagram given below five resistors of resistances $5\ \Omega$, $20\ \Omega$, $15\ \Omega$, $20\ \Omega$ and $10\ \Omega$ are connected as given in figure to a $6\ \text{V}$ battery -



Calculate the total resistance in the circuit.

- 2.a) How do you connect an ammeter and a voltmeter in an electric circuit?
b) A hot plate of an electric oven connected to a $220\ \text{V}$ line has two resistance coils A and B, each of $24\ \Omega$ resistance, which may be used separately, in series, or in parallel. What are the currents in the three cases?
- 3.a) Rahul has two wires of the same material but of different lengths and areas of cross-section. Rahul wanted to find the difference in their resistivities. What could be the difference in their resistivities?
b) A copper wire has diameter $0.5\ \text{mm}$ and resistivity of $1.6 \times 10^{-8}\ \Omega\ \text{m}$. What will be the length of this wire to make its resistance $10\ \Omega$? How much does the resistance change if diameter is doubled?
- 4.a) An electric bulb is rated as $220\ \text{V}$ and $100\ \text{W}$. What is its resistance? Calculate the power consumed, when it is operated on $110\ \text{V}$.
b) What is the S.I. unit of power?
c) What is an electric fuse?
- 5.a) Two conducting wires of the same material and of equal lengths and equal diameters are first connected in series and then parallel in an electric circuit. What will be the ratio of heat produced in series and parallel combination?
b) Show how you would connect three resistors, each of resistance $6\ \Omega$, so that the combination has a resistance of $4\ \Omega$, with the help of diagram.

- 6.a) What is resistance? On what factors does the resistance of a conductor depend?
 b) Will current flow more easily through a thick wire or a thin wire of the same material, when connected to the same source? Why?
- 7.a) Draw a schematic diagram of a circuit consisting of a battery of three cells of 2 V each, a 5 Ω resistor, an 8 Ω resistor, and a 12 Ω resistor, and a plug key, all connected in series.
 b) Judge the equivalent resistance when the following are connected in parallel
 1) 1 Ω and 10⁶ Ω
 2) 1 Ω , 10³ Ω and 10⁶ Ω
- 8.a) How many 176 Ω resistors (in parallel) are required to carry 5 A on a 220 V line?
 b) A piece of wire of resistance R is cut into five equal parts. These parts are then connected in parallel. If the equivalent resistance of this combination is R', then find the ratio of R/R'.
 c) Name a device that helps to maintain a potential difference across a conductor.
- 9.a) What is meant by saying that the potential difference between two points is 1 V ?
 b) How much energy is given to each coulomb of charge passing through a 6 V battery?
 c) Let the resistance of an electrical component remain constant while the potential difference across the two ends of the component decreases to half of its former value. What change will occur in the current through it ?
- 10.a) An electric lamp of 100 Ω , a toaster of resistance 50 Ω , and a water filter of resistance 500 Ω are connected in parallel to a 220 V source. What is the resistance of an electric iron connected to the same source that takes as much current as all three appliances, and what is the current through it ?
 b) What is (i) the highest, (ii) the lowest total resistance that can be secured by combinations of four coils of resistance 4 Ω , 8 Ω , 12 Ω , 24 Ω ?

CHEMISTRY

1. Differentiate between metals and nonmetals on the basis of their chemical properties.
2. What do you mean by amphoteric oxide? State with the help of one example.
3. Explain the formation of calcium chloride(or any other ionic compound) with the help of electron dot structure .Why do ionic compounds not conduct electricity in solid state but conduct electricity in molten and aqueous state?
4. What do you mean by ionic compound? State any four properties of ionic compound.
5. Of the three metals X,Y and Z, X react with cold water, Y with hot water and Z with Steam only. Identity X,Y and Z .Also arrange them in order of increasing reactivity.
6. a) What is thermit process ?Where is this process used ? Write a balanced chemical equation for the reaction involved.
 b) where does the metal aluminium, used in this process occur in the reactivity series of metals ?
 c)Name the substances that are getting oxidised and reduced in the process.
7. How is the method of extraction of metals high in the reactivity series different from that for the metals in the middle? Why can the same process not be applied for them? Name the process used for the extraction of these metals.
8. Differentiate between calcination and roasting with the help of one example each.
9. What is meant by refining of metals? Describe the electrolytic refining of copper with a neat labelled diagram.
- 10.State giving reason for the change in appearance observed when each of the following metal is exposed to atmospheric air for sometime a)silver b)copper and c) iron .
11. What happens when a)Zinc carbonate is heated in absence of oxygen
 . b) a mixture of copper oxide and and copper sulphide is heated.
 c) Cinnabar is heated in presence of air.
 d) Aluminium oxide is reacted with hydrochloric acid.
 e) potassium react with water.
12. A student added and equal amount of copper sulphate solution in two beakers. He added zinc in beaker P and silver in beaker Q. The student observed that the colour of the solution in the beaker P is changed ,while there is no change in beaker Q . Why?

BIOLOGY

1. Why is variation beneficial for the species but not for the individual? What is the importance of DNA copying in reproduction?
2. What are the different ways of fission in unicellular organisms? Give one example of each. Specify the orientation of Binary fission in Leishmania. Also draw the labelled diagram of binary fission in Amoeba.
3. Describe the process of following asexual mode of reproduction with the help of one example:
 - a) Fragmentation
 - b) Regeneration
 - c) Budding
 - d) Spore formation
4. What is vegetative propagation? What are the advantages of vegetative propagation?
5. i) What are the parts of flower? Represent the following parts with the help of a diagram.
 - a) carry pollen grains
 - b) ovule present inside.
 - c) inside it formation of pollen tube occurs
 - d) male productive part flower.ii) Give two examples of unisexual and bisexual flowers.
6. What is double fertilization? State the steps of double fertilization with the help of a diagram.
7. Draw the diagram of Dicotyledon seed and label Plumule and Radicle. State the importance of cotyledon, Plumule and Radicle.
8. i) Draw the diagram of Male reproductive system in human being. and label the following :--
 - a) testes
 - b) scrotum
 - c) prostate gland
 - d) vas deferensAlso mention one function of each.
- ii) Draw the diagram of female productive system in human being and label the following :--
 - a) fallopian tube.
 - b) Ovary
 - c) uterusAlso mention one function of each.
9. What is placenta? State the structure and function of placenta.
10. What do you mean by contraception? State the different methods of contraception? What is the need of contraceptive methods?

1. a) A gas is released during photosynthesis. Name the gas and also state the way by which the gas is evolved?
 - b) What are stomata? What governs the opening and closing of stomata?
2. a) Draw a diagram of human alimentary canal and label--- gall bladder, pancreas, liver and small intestine in it.
 - b) Give two reasons to explain why absorption of digested food occurs mainly in small intestine.
3. a) Draw diagram to show nutrition in Amoeba and label the parts used for this purpose. Mention a purpose served by this part other than nutrition.
 - b) Name the glands, associated with digestion of starch in human digestive tract and mention their role.
 - c) How is required pH maintained in the stomach and small intestine?
4. a) List two differences between holozoic nutrition and saprophytic nutrition. Give two examples of each of them.
 - b) State the roles of liver and pancreas.
 - c) Name the organ which perform the following functions in humans:
 - 1) Absorption of digested food
 - 2) Absorption of water
5. a) Which type of nutrition is observed in Fungi and Cuscuta?
 - b) Name the part of alimentary canal where :
 - 1) Food is completely digested
 - 2) A juice is secreted that has trypsin
 - 3) Bile gets stored
 - 3) Water gets absorbed from unabsorbed food
6. Design an activity to show that chlorophyll is essential for photosynthesis.
7. a) Draw diagram of respiratory system and label the following:
 - 1) Part through which air is taken in.
 - 2) Part which protects the lungs
 - 3) Part which carries air into lungs.

- b) What are alveoli ? Mention their role in respiration.
8. Explain how does the exchange of gases occur in plants across the surface of stem, roots and leaves.
9. a) How are lungs designed in human beings to maximize the area for exchange of gases ?
- b) Rate of breathing in aquatic organisms is much faster than in terrestrial organisms. Give reasons.
- c) During the breathing cycle what is the advantage of residual volume of air in lungs. Explain.
10. a) What are the different ways in which glucose is oxidized to provide energy in various organisms?
- b) List two characteristics of lungs which make them an efficient respiratory surface.
11. Give reasons for the following:
- a) Glottis is covered by epiglottis
- b) Fine hair and mucus are present nasal passage
- c) Lung alveoli are covered with blood capillaries
- d) Wall of trachea is supported by cartilage rings
- e) Cramps caused in our muscles during sudden excess activity

