

MBD MODEL QUESTION PAPERS FOR PRACTICE

MODEL QUESTION PAPER—I

CLASS—X

SUBJECT—SCIENCE (THEORY)

Time Allowed : 3 Hours

Max. Marks : 80

General Instructions :

- (i) The question paper comprises two sections, A and B, you are to attempt both the sections.
- (ii) All questions are compulsory.
- (iii) All questions of both sections A and B are to be attempted separately.
- (iv) Questions 1–2 carry **one** mark each.
- (v) Questions 3–5 carry **two** marks each.
- (vi) Questions 6–15 carry **three** marks each.
- (vii) Questions 16–21 carry **five** marks each.
- (viii) Questions 22–27 in Section B are practical based carry **two** marks each.
- (ix) There is no overall choice. However, internal choice has been provided in three questions of 3 marks each, two questions of 5 marks each and one question of 2 marks in section B. Only one option in each question is to be attempted.

SECTION—A

1. Identify the substance oxidised and reduced in the equation :
$$\text{MnO}_2 + 4\text{HCl} \longrightarrow \text{MnCl}_2 + \text{Cl}_2 + 2\text{H}_2\text{O}.$$
2. How is kW h related to J ?
3. Give four important properties of ionic compounds.
4. Name two energy sources that you would consider to be renewable. Give reasons for your choices.
5. Where is zygote formed in a flower after fertilization ?
6. Define atomic radius. How does it vary down a group and along a period ?

Or

An element P of atomic mass 23 has 12 neutrons in its nucleus. Identify the element P, its group number and period.

7. Atomic numbers of few elements are given below :
10, 20, 7 and 14.
 - (a) Identify the elements.
 - (b) Identify the group numbers of these elements in the periodic table.
 - (c) Identify the periods of these elements in the periodic table.

M-1

8. Why are crop fields called as artificial ecosystem ?
9. Explain some harmful effects of agricultural practices on the environment.

Or

- (a) What do you mean by short circuiting.
 - (b) Why are electrical appliances connected to earth wire?
10. Suggest any four activities in daily life which are ecofriendly.
 11. What is the pattern of magnetic field due to a straight current carrying conductor ?
 12. A wire of resistance R is cut into 4 parts each of the same length. Three parts are connected in parallel and 4th in series with combination of three. Determine the equivalent resistance.
 13. We generally use a device in an electrical circuit, which is essential for safety of appliance as well as life.
 - (a) What is that safety device called ?
 - (b) How does it work and help us to live happily ?
 - (c) Do you think it is necessary for every place where electricity is used ?
 14. What is hypermetropia ? How is it corrected ? Explain by giving neat diagram.

Or

What is nature, position and size of image formed by a convex lens when object is placed between focus and optic centre of the lens? Also draw diagram in support of your answer.

15. A 4.5 cm needle is placed 12 cm away from a convex mirror of focal length 15 cm. Give the location of image and magnification. Describe what happens to the image as the needle is moved farther from the mirror.
16. Give reasons :
 - (a) Platinum, gold, silver are used to make jewellery.
 - (b) Sodium and potassium are obtained by electrolysis.
 - (c) Sodium, potassium and lithium are stored under kerosene oil.
 - (d) Aluminium is a highly reactive metal, yet it is used to make utensils for cooking.
 - (e) Carbonate and sulphate ores are usually converted into oxides during the process of extraction.

Or

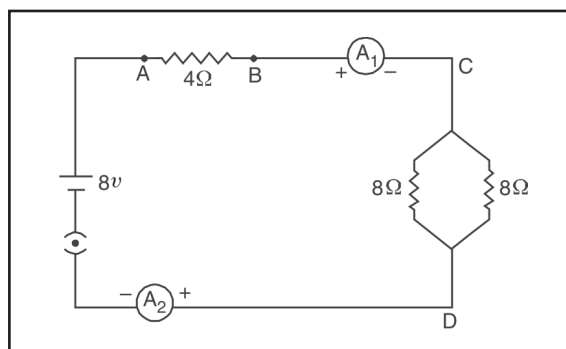
Explain construction and working principle of electric generator. Write the uses of its various parts.

17. Explain zone refining, electrorefining and magnetic separation.
18. (a) What are the essential properties of a good fuel ?
- (b) What is combustion ? Name different types of combustions.

Or

What is sea wave energy? How is it harnessed?

19. Find out the following in given electric circuit.
 - (a) Effective resistance of two $8\ \Omega$ resistors in combination.
 - (b) Current flowing through $4\ \Omega$ resistor.
 - (c) Potential difference across $4\ \Omega$ resistor.



- (d) Power dissipated in 4Ω resistance.
 (e) Difference in readings of A_1 and A_2 if any.
20. Differentiate the following:
- (a) Aerobic respiration and anaerobic respiration.
 (b) Arteries and veins
 (c) Light reaction and dark reaction.

Or

What is placenta? What roles does it play during pregnancy?

21. (a) Discuss the fate of food in stomach.
 (b) What is significance of balanced diet ?

SECTION-B : Practical Based Questions

22. Why does wilting of plants occur ?
23. Name the following :
- (i) Organelle present in guard cells of stomata.
 (ii) Organelle present in leaves providing green colour.
24. The correct sequence of starch test in leaf should be :
- (A) Removal of black paper strip, boiling in iodine solution washing with water
 (B) Removal of black paper strip, boil in alcohol over water bath, wash with water, dip completely in iodine.
 (C) Removal of black paper strip, wash with water, test with iodine.
 (D) Removal of black paper strip, boiling in alcohol, test with iodine.
25. Metals are refined by using different methods. Out of the following, metals which metals are refined by electrolytic refining and why ?
 Au, Cu, Na and K.

26. The given apparatus is available in a laboratory :

Battery – adjustable from 0 to 4.5 V.

Resistors – 3Ω and 6Ω .

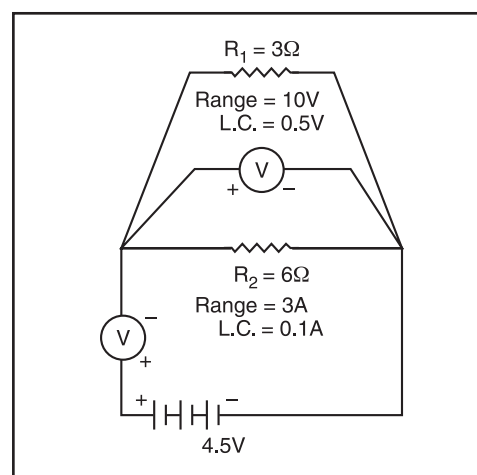
Ammeters – A_1 of range 0 to 3 A; Least count 0.1 A

– A_2 of range 0 to 1 A, Least count 0.05 A

Voltmeter – V_1 of range 0 to 10 V; Least count 0.5 V

– V_2 of range 0 to 5 V, Least count 0.1 V.

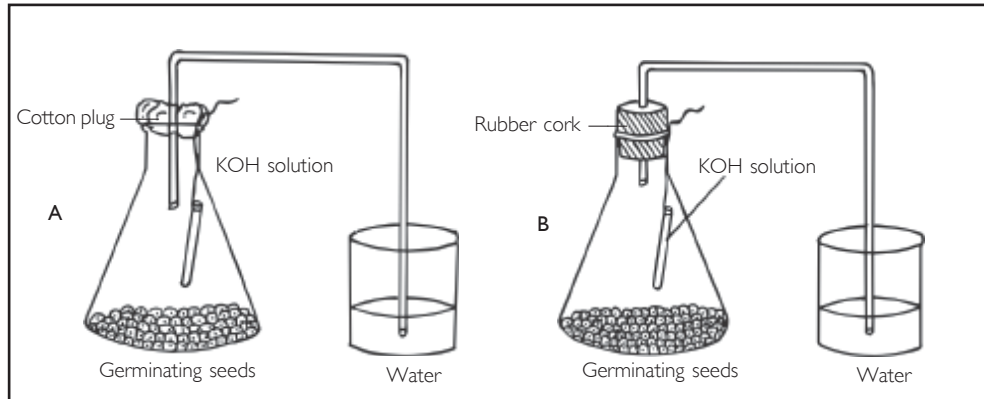
What is the best combination of voltmeter and ammeter for finding the equivalent resistance of resistors in series ?



Or

Draw the path of two high rays passing through a convex lens, when object is placed at a distance of twice of its focal length. Also write the nature, position and size of the image formed in this case.

27. Using the same number of given germinating gram seeds, two students A and B set up the experiment separately. Student A used a cotton plug to hold the bent tube in the mouth of the flask. Student B used a rubber cork.



What do they observed after 4 hours ?

MODEL QUESTION PAPER—2**CLASS—X****SUBJECT—SCIENCE (THEORY)****Time Allowed : 3 Hours****Max. Marks : 80****General Instructions:** Same as Model Question Paper-I.**SECTION—A**

1. What is far point of the eye ?
2. Give reason as to why the colour of the sky is blue ?
3. Define periodicity and give its cause.
4. Surface of some metals lose their brightness when kept in air for a long time. Why ?
5. Draw diagram of stomata. Write function of guard cells.
6. What happens when :
 - (a) Zinc metal is added to copper sulphate ?
 - (b) Aluminium metal is added to dil. HCl ?
 - (c) Silver metal is added to copper sulphate solution.

Also write balanced equation if reaction occurs.

Or

Why should people switch over to non-conventional sources of energy ? Give two reasons.

7. Compound such as alcohols and glucose also contain hydrogen but are not categorised as acids. Describe an activity to prove it.
8. What is biological magnification ? Will the levels of this magnification be different at different levels of ecosystem ?
9. What is asexual reproduction ? Discuss spore formation in fungi.

Or

Differentiate between arteries and veins.

10. Human actions are leading to environmental problems. But we need not feel helpless as there are many things we can do to make a difference.
Keeping in view the above statement answer the following questions :
 1. What are the three R's which can make a difference in our environment.
 2. How can you contribute at your own level to save the environment.
11. What is the cost of using 8 CFL of 15 W each for 12 hour daily for month of April if electric energy costs ₹ 5 per kWh ?
12. What is resistivity or specific resistance ? Upon what factors does it depend ? Give its SI unit.

Or

How are fossils considered important in the study of evolution? Explain two ways to estimate the age of fossils.

13. Two lamps, one rated 60 W – 220 V and other 40 W – 220 V are connected in parallel to electric supply at 220 V.
- Draw the circuit diagram to show connections.
 - Calculate the current drawn from electric supply.
 - Calculate the total energy consumed by the two lamps together when they operate for one hour.
14. What happens if the elasticity of the eye lens is reduced to zero ?
15. Near point of a hypermetropic eye is 1 m. What is the power of a lens required to correct this defect? Assume near point of normal eye to be at 25 cm.
16. Explain Mendel's law of segregation with a monohybrid cross.
17. An element A burns with golden flame in air. It reacts with another element B, atomic number 17 to give a product C. An aqueous solution of product C on electrolysis gives a compound D and liberates hydrogen. Identify A, B, C and D. Also write down the equations for the reaction involved.
18. (i) Explain the use of safety fuse and earth. How these prevent shortcircuiting/electric shock etc. ?
 (ii) Why does a magnetic compass needle pointing north and south in absence of nearby magnet get deflected when a bar magnet or a current carrying loop is brought near it. Discuss salient features of magnetic lines of field concept.

Or

- What is 'watershed management' ? Mention its two advantages.
 - What are the consequences of excessive use of fossil fuels on the environment?
19. What is electric energy ? How is it connected to V, I, R, t ? Give SI and practical units of electric energy. How are practical and SI unit of electric energy related ?
20. (a) Why is rate of breathing in aquatic organisms much faster than terrestrial organisms ?
 (b) What is role of HCl in our stomach ?
 (c) What is the structural and functional unit of kidney ?

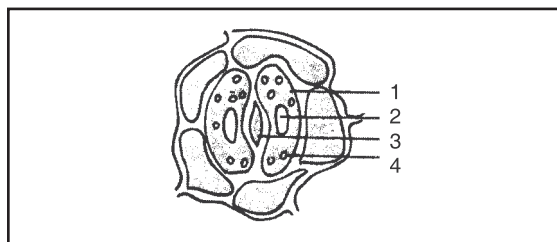
Or

- How does underproduction and overproduction of growth hormone lead to disorders in the body?
 - Write the functions of cerebellum and medulla. Also draw their diagrams.
21. (a) Name the hormone which is injected to a diabetic patient.
 (b) If iodine is insufficient in one's diet, what might be the deficiency disease and its symptoms ?
 (c) How does co-ordination take place in plants ?

SECTION-B : Practical Based Questions

22. The students followed this procedure to prepare a temporary mount of a leaf peel to show stomata :
- took a transparent leaf peel.
 - observe the leaf peel under microscope.
 - put a drop of glycerine on the peel and covers it with a cover slip.
 - transfer a piece of the leaf peel on a clean, dry glass slide.
- What is the correct sequence of steps ?
23. What precautions should be taken by Jagriti, while mounting the leaf peel for study of stomata ?

24. A student draws the following sketch of stomatal apparatus and numbers the parts to label them. The chloroplast is denoted by which number.



25. What happens when zinc granules are treated with dil. H_2SO_4 ? Also give the reaction.
26. A piece of wire having resistance R is cut into three pieces of equal lengths. What is resistance of each piece as compared to original resistance? What will be resistance if three pieces are joined in parallel?

Or

Which part of the pomegranate seeds do we eat?

27. A part of de-starched leaf of a potted plant was covered with black paper strips on both sides and the plant was kept in sunlight for 8 hours. The leaf was then tested with iodine after boiling it in alcohol. What inference will you draw from this experiment? Define the process.

MODEL QUESTION PAPER—3**CLASS—X****SUBJECT—SCIENCE (THEORY)****Time Allowed : 3 Hours****Max. Marks : 80****General Instructions:** Same as Model Question Paper-I.**SECTION—A**

1. What is the function of pupil and iris in eye ?
2. Name the wastes which are generated in your school daily.
3. Explain why sodium is kept under kerosene oil.
4. What is resistivity ? What is its SI unit ?
5. Why are some patients of diabetes treated by giving injection of insulin ?
6. What are hydrated salts ? Give experiment to show that blue vitriol crystals contain water of crystallisation.
7. Give three points of differences between Mendeleev's Periodic table and Modern Periodic table.

Or

Name the device that converts electrical energy to mechanical energy. Explain the principle involved in this device and draw its diagram.

8. Why is pollination necessary for fertilization ?
9. What will happen if we kill all the organisms in one trophic level ?
10. What is ozone and how does it affect an ecosystem ?
11. How does the creation of variations for adaptability in a species promote survival ?

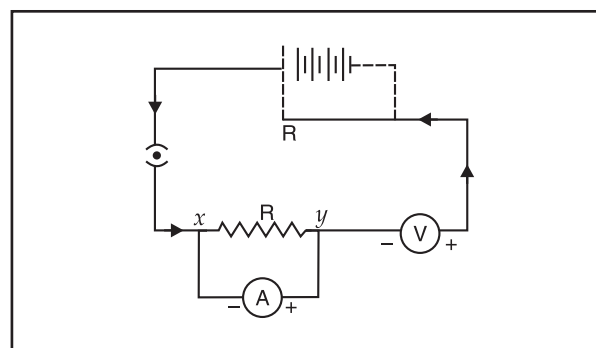
Or

Differentiate between Mendeleev's periodic table and Modern periodic table.

12. In our society mother-in-law always blames her daughter-in-law for the birth of female baby. Why ?
 - (i) Suggest who is actually responsible for birth of female baby.
 - (ii) Suggest a campaign against female foeticide.
13. A child has drawn the electric circuit to study Ohm's law as shown in the figure. His teacher told that the circuit diagram needs correction. Study the circuit diagram and redraw making all corrections.
14. What is the pattern of magnetic field due to a circular coil carrying current ?

Or

Explain the breaking down of glucose in absence of oxygen.



15. How do auxins promote growth of tendril around a support ?
16. What is Plaster of Paris ? How is it prepared ? What is the action of heat on it ? Give the two uses of it.

Or

- (a) Name the causative organism of AIDS. Which category of disease AIDS belong to?
- (b) Mention two programs to spread awareness among people about the disease AIDS.
17. Explain the following :
- (a) Reactivity of Al decreases if it is dipped in HNO_3 .
- (b) Iron articles are galvanised.
- (c) Metals like Na, K, Ca and Mg are never found in their free states in nature.
- (d) Carbon cannot reduce the oxides of Na or Mg.
- (e) NaCl does not conduct electricity in solid state but it conducts electric current in the molten or dissolved state.
18. What is the need of connecting the resistors in combination ? derive the relation for resultant resistance when resistors are connected in parallel.

Or

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

19. Reproduction is essentially a phenomenon that is not for survival of an individual but for the stability of species. Justify.
20. Radius of curvature of a concave mirror is 20 cm. An object is placed at 40 cm from pole. Where is the image formed ? What will be nature and magnification produced ?

Or

An object is moved from infinity to a convex lens. Draw neat diagram to show as to how the images are formed for different positions of the objects.

21. Three mirrors, one convex, one concave and third plane are fixed on a wall. How will you know which one is convex, concave or plane without touching them ?

SECTION-B : Practical Based Questions

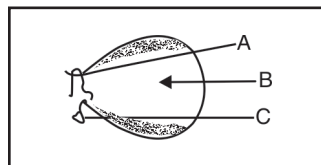
22. In an experiment on photosynthesis, a student fixed a strip of black paper on the dorsal surface of a Bougainvillea leaf in the morning. In the evening she tested the leaf for starch. What is the result ?
23. What is the function of stomata ?
24. Define transpiration and photosynthesis.

Or

What happens when an iron nail is dropped into copper sulphate solution ?

25. Out of Cu, Mg, Al, Zn, which can displace Fe from FeSO_4 solution, and why ?

26. In figure the parts A, B and C are sequentially :



- (A) cotyledon, plumule and radicle
 - (B) plumule, radicle and cotyledon
 - (C) plumule, cotyledon and radicle
 - (D) radicle, cotyledon and plumule.
27. Power of a concave-convex lens is $5D$, its focal length is :
- (A) 5 m
 - (B) 0.5 m
 - (C) 0.2 m
 - (D) none of three.