Genesis Educates

"There is no element of genius Without some form of madness"

10th CBSE Science Mock-3

Time Allowed : 3 hrs. **Max. Marks : 80**

Questions: 1.-1.4 (1. Mark), 15-24 (3 Marks), 25-30 (5 Marks)

SECTION-A

1. Write is the expression for the magnitude of force F experienced by a moving charged particle in a magnetic field, B if particle is having charge Q and velocity v.

Or

What is the function of split rings in electric motor?

2. What types of ores are concentrated by Froth floatation process?
3. **Answer question numbers 3(a) to 3(d) on the basis of your understanding of the following paragraph and the related studied concepts.**

Sunita was learning to bake cakes. She added the ingredients according to the recipe and placed it in the oven. When the cake was ready, she took it out from the oven. She was surprised as the cake was hard instead of soft and fluffy.

(a) What is the probable reason that cake was not fluffy?
(b) What ingredient did she miss to add while preparing the cake?
(b) Write chemical reaction to show how this ingredient makes the cake fluffy?
(d) What is the correct chemical formula of this ingredient?
(i) $NaHCO_3$ (ii) Na_2CO_3 (iii) NaOH (iv) $Na_2CO_3 . 10H_2O$

4. Question numbers 4(a) to 4(d) are based on the table related to the Modern Periodic Table in which, six elements A, B, C, D, E and F (here letters are not the usual symbols of the elements) of the Modern Periodic Table with atomic numbers 3 to 18 are given. Study the table and answer the questions that follow:

3	**4**	**5**	**6**	**7**	**8**	**9**	**10**
A					E		G
11	**12**	**12**	**14**	**15**	**16**	**17**	**18**
B	C		D			F	

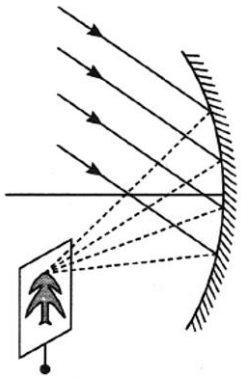
(a) Which of these is a noble gas?
(b) Which of these is a halogen?
(c) If B combines with R what would be the formula of the compound formed?
(d) Write the electronic configurations of C and E.

5. Which of the following measures will decrease the strength of the magnetic field of a current carrying solenoid?
(a) Increase the permeability of the core
(b) Increase the temperature of solenoid
(c) Increase the current
(d) Increase the number of turns of wire

6. Parallel rays, from the top of a distant tree, incident on a concave mirror, form an image on the screen.
Which of the given diagrams correctly shows the formation of image of the tree?

1

(a)



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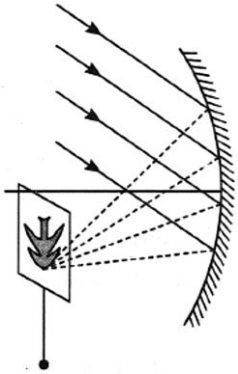

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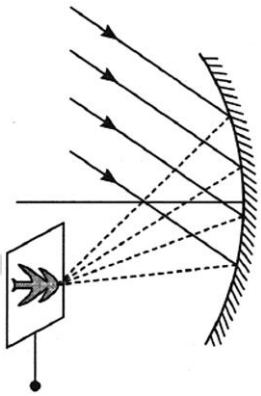
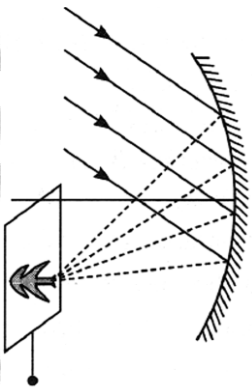


(d)



7. The highly metallic element will have the configuration of
(a) 2, 8, 7 (b) 2, 8, 2 (c) 2, 8, 8, 5 (d) 2, 8, 8, 1

8. The lightest and heaviest metal in the periodic table respectively are
(a) Sodium, Cesium (b) Lithium, Plutonium
(c) Lithium, Cesium (d) Lithium, Osmium

Or

The correct decreasing order of metals in activity series is
(a) Ni > Ca > Mg > Fe (b) Mg > Ca > Fe > Ni
(c) Ca > Mg > Ni > Fe (d) Ca > Mg > Fe > Ni

9. The number of molecules of water in epsom salt is
(a) 5 (b) 4 (c) 7 (d) 6

10. During electrolytic reduction of molten alumina, aluminium metal is obtained at
(a) aluminium anode (b) carbon cathode
(c) aluminium cathode (d) carbon anode

11. The brain is lodged inside the cavity of skull known as:
(a) durameter (b) cranium (c) medulla (d) meninges

Or

Which hormone brings about development of mammary gland?
(a) Estrogen (b) Progesterone (c) Relaxin (d) Oxytocin

Match the following:

12.

	Column A		**Column B**
(a)	Ecosystem	(i)	10% law
(b)	Energy flow	(ii)	Biotic and Abiotic components
		(iii)	CFC's
		(iv)	Bidirectional

Direction (Q.13 and Q.14): In the following Questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:

(a) Both the Assertion and the Reason are correct and the Reason is the correct e4planation of the Assertion.
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
(c) Assertion is true but the Reason is false.
(d) The statement of the Assertion is false but the Reason is true.

13. Assertion: Food cans are coated with tin and not with zinc.
Reason: Tin is less reactive and non-toxic metal.

14. Assertion: Sky appears dark to an astronaut.
Reason: Large scattering of light takes place in the atmosphere.

SECTION-B

15. A wire of resistance 5 Ω is bent in the form of a closed circle. What is the effective resistance between the two points at the ends of any diameter of the circle?

Or

An instrument shoots out a beam of electrons. Beam current is 10 microampere. How many electrons strike the instrument each second? How much charge strikes it in one minute?

16. Two metallic wires A and B of same material are connected in parallel. Wire A has length/and radius r, wire B has length 2*l* and radius 2r. Compete/Deduce the ratio of the total resistance of parallel combination and the resistance of wire A.

17. (a) Define sustainable development.
(b) Name four gases commonly present in biogas. State advantages of using this gas over fossil fuels.

18. (a) What is clean fuel?
(b) Why is biogas termed as clean fuel? Give two reasons.

19. Explain two types of respiration in detail.

20. Define the following terms (any three)
(a) Gestation Period (b) Fertilisation
(c) Implantation (d) Parturition

21. (a) Differentiate between Menarche and Menopause.
(b) Write a short note on: Sexually Transmitted Diseases.

22. Explain the term emasculation. Why is it necessary in cross-breeding experiments in pea?

Or

Discuss the hybridisation technique adopted by Mendel during cross pollination in pea plant.

23. State the following with reference to the elements of the first three periods of the periodic table.
(a) The noble gas with completely filled first shell.
(b) A metalloid in period 3.
(c) The group whose elements have zero valency.
(d) An alkali metal of period 2 which dissolves in water giving a strong alkali.
(e) An electrovalent compound formed between an alkaline earth metal and a halogen.

(f) Element with no neutron or single proton.

24. (a) Write the chemical formula of washing soda. What happens when crystals of washing soda are exposed to air? Explain giving chemical equation.
(b) Why is sodium carbonate called as washing soda?

Or

(a) Give two uses of hydrochloric acid.
(b) The pH change is the cause of tooth decay. Explain.

SECTION-C

25. (a) What do you mean by short-circuiting?
(b) Name the safety device which is commonly used in the electric circuits and appliances.
(c) State the law which is used for determining the direction of the magnetic lines of force due to a straight conductor carrying current.

Or

Explain with the help of a labelled diagram the working of DC generator.

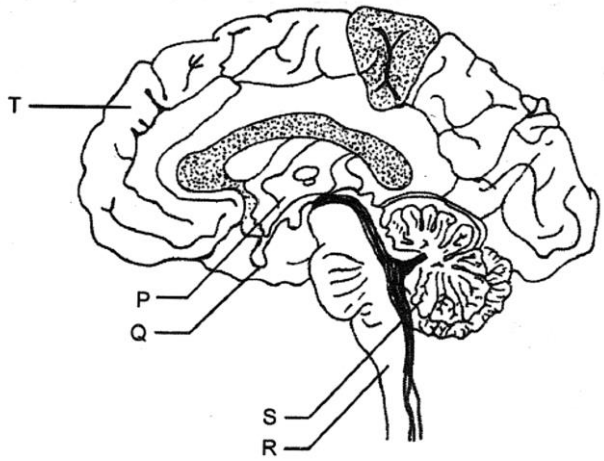
26. A concave lens of focal length 15 cm forms an image 10 cm from the lens. Draw a diagram (upto scale) and prove that object is placed 30 cm away from the lens.

27. (a) "Breathing cycle is rhythmic whereas exchange of gases is a continuous process" Justify this statement.
(b) State the function of guard cells. What will happen to guard cells and stomatal pore when water flows to guard cells?
(c) Where is blood oxygenated in fishes?

Or

(a) Explain the functioning of heart.
(b) What is the importance of double circulation?

28. (a) Given below is a diagram of human brain. Laber the parts P, Q, R, S and T.



(b) Write the main function of each part.
(c) One of the hormones produced by Q regulates growth and development of reproductive organs. Name that hormone

29. (a) Make a diagram to show how hypermetropia is corrected?
(b) The near point of hypermetropic eye is 1 m. What is the power of the lens required to correct this defect? Assume that near point of normal eye is 25 cm.

30. A small quantity of sugarcane juice is mixed with yeast and kept in an airtight container. After a few days, the juice starts frothing and gives strong smell.

(a) Name the process.

(b) Describe the process and the changes taking place.

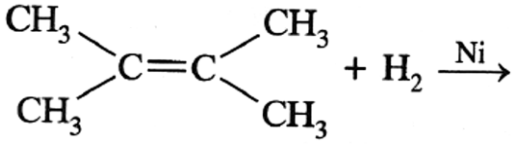
(c) Which product is formed in the process?

(d) How can you recover the product from the reaction mixture?

(e) Give chemical equation.

Or

Complete the equations and also give the role of reagents written on arrows.

(a) 

(b) $CH_3COOH + CH_3CH_2OH \xrightarrow[H_2SO_4]{conc.}$.

(c) $CH_3CH_2OH \xrightarrow[heat]{alk.\ KMnO_4}$.