

10th Science Oswaal Sample Paper 05(CBSE 2020)

1. The radius of curvature of a spherical mirror is 20 cm. What is its focal length? 1
2. Should the resistance of a voltmeter be low or high? Give reason. 1
3. State two physical properties of gold which are of extreme use to jewellers. 1
4. Define amphoteric oxides. 1

OR

Ionic compounds conduct electricity in molten state. 1

5. Name the process of loss of water in the form of vapour from the aerial parts of the plants. 1
6. What is a rainbow? 1
7. The depletion of ozone layer is a cause of concern. Why? 1

OR

Why are green plants called producers?

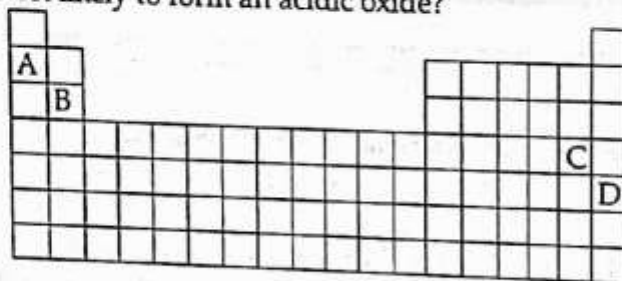
8. Electrolysis of water is a decomposition reaction. The mole ratio of hydrogen and oxygen gases liberated during electrolysis of water is 1
 - (a) 1:1
 - (b) 2:1
 - (c) 4:1
 - (d) 1:2

9. Which of the following substance will not give carbon dioxide on treatment with dilute acid? 1
 - (a) Marble
 - (b) Limestone
 - (c) Baking soda
 - (d) Lime

OR

If a few drops of a concentrated acid accidentally spill over the hand of a student, what should be done?

- (a) Wash the hand with saline solution
 - (b) Wash the hand immediately with plenty of water and apply paste of sodium hydrogen carbonate
 - (c) After washing with plenty of water, apply solution of sodium hydroxide on the hand
 - (d) Neutralize the acid with a strong alkali 1
10. The positions of four elements A, B, C and D in the modern periodic table are shown below. Which element is most likely to form an acidic oxide?



- (a) A
 - (b) B
 - (c) C
 - (d) D 1
11. Which of the following lenses would you prefer to use while reading small letters found in a dictionary? 1
 - (a) A convex lens of focal length 50 cm
 - (b) A concave lens of focal length 50 cm
 - (c) A convex lens of focal length 5 cm
 - (d) A concave lens of focal length 5 cm

12. Choose the correct option.

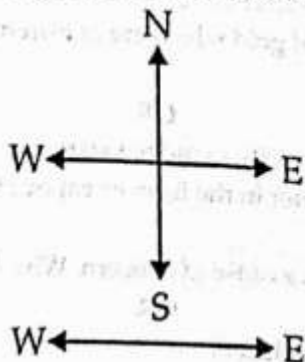
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A rectangular coil of copper wires is rotated in a magnetic field. The direction of the induced current changes once in each

- (a) two revolutions
- (b) one revolution
- (c) half revolution
- (d) one fourth revolution

OR

A constant current flow in a horizontal wire in the plane of the paper from East to West is shown in Figure. The direction of magnetic field at a point will be North to South :



- (a) directly above the wire.
- (b) directly below the wire.
- (c) at a point located in the plane of the paper, on the north side of the wire.
- (d) at a point located in the plane of the paper, on the south side of the wire.

13. Which one of the following green house gases is a contributor due to incomplete combustion of coal and petroleum ?

- (a) Oxides of nitrogen
- (b) Methane
- (c) Carbon monoxide
- (d) Carbon dioxide

OR

Excessive exposure of humans to UV-rays results in

- (i) damage to immune system.
- (ii) damage to lungs.
- (iii) skin cancer.
- (iv) peptic ulcers.
- (a) (i) and (ii)
- (b) (ii) and (iv)
- (c) (i) and (iii)
- (d) (iii) and (iv)

Directions : For question numbers 14-16, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below :

- (a) Both A and R are true and R is correct explanation of the assertion.
- (b) Both A and R are true but R is not the correct explanation of the assertion.
- (c) A is true but R is false.
- (d) A is false but R is true

14. Assertion : The twinkling of a star is due to atmosphere refraction of star light.

Reason : The refraction of light by the earth's atmosphere is due to the gradually changing refractive index of air layers.

15. Assertion : When a wire of resistivity is pulled to double its length, its resistivity remains the same.

Reason : Resistivity depends on the nature of material.

16. Assertion : Humans are not truly aerobic.

Reason : They produce lactic acid anaerobically.

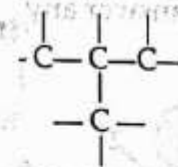
17. Carbon has the unique property to form bonds with other atoms of carbon.

- (a) The characteristic property of carbon as depicted in the fig. A is:
- (i) Allotropy (ii) Catenation
(iii) Isomerisation (iv) Halogenation
- (b) Give reason for this unique property of carbon.
- (c) The name of a saturated compound in which the carbon atoms are arranged in a ring is:

- (i) Carbon tetrachloride (ii) Cyclohexane
(iii) Pentane (iv) Methane

(d) The number of single bonds present in this compound are :

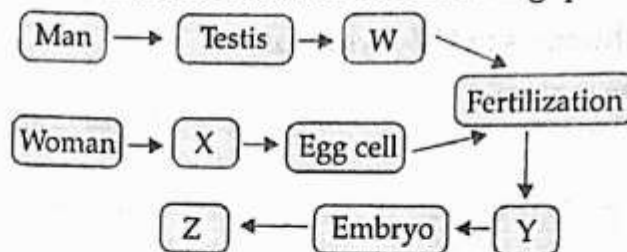
- (i) 12 (ii) 14
(iii) 16 (iv) 18



(e) Which of the following statements are correct for carbon compounds?

- (1) Most carbon compounds are good conductors of electricity.
(2) Most carbon compounds are poor conductors of electricity.
(3) Force of attraction between molecules of carbon compounds is not very strong.
(4) Force of attraction between molecules of carbon compounds is very strong.
- (i) (2) and (4) (ii) (2) and (3)
(iii) (1) and (4) (iv) (1) and (3)

18. Understand the given flow chart and answer the following questions.



(a) Which of the following represents W, X, Y and Z ?

	W	X	Y	Z
(i)	Gamete	Ovary	Foetus	Zygote
(ii)	Sperm	Ovary	Zygote	Foetus
(iii)	Sperm	Uterus	Foetus	Baby
(iv)	Gamete	Fallopian tube	Zygote	Baby

(b) In female body, the process of fertilisation takes place in:

- (i) Uterus (ii) Fallopian tube
(iii) Ovary (iv) Fimbriae

(c) The main function of part X is:

- (i) To produce ova (ii) To produce sperm
(iii) To produce testosterone (iv) To initiate male secondary characters.

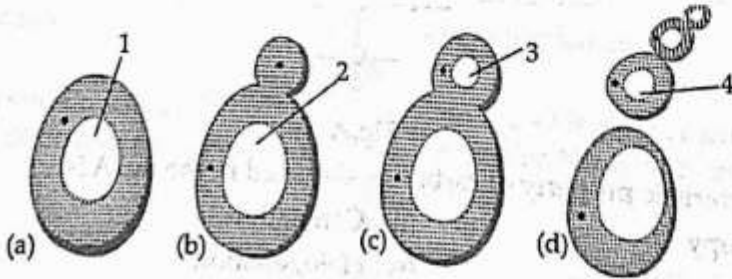
(d) The periodic breakdown of uterine lining and its removal along with blood and mucous in (post pubertal stage) of a human female is known as :

- (i) Menstruation (ii) Menopause
(iii) Puberty (iv) Menarche

(e) Why does the above process occur ?

19. Study the diagram given below and answer any four questions.

4



(a) The above process is :

- (i) Binary fission
(ii) Budding
(iii) Fragmentation
(iv) Regeneration

(b) Which organism uses the above method for reproduction?

- (i) Yeast (ii) Amoeba
(iii) *Spirogyra* (iv) *Leishmania*

(c) An organism capable of reproducing by two asexual reproduction methods one similar to the reproduction in yeast and the other similar to the reproduction in *Planaria* is:

- (i) *Spirogyra* (ii) *Hydra*
(iii) *Bryophyllum* (iv) *Paramecium*

(d) A *Planaria* worm is cut horizontally in the middle into two halves P and Q such that the part P contains the whole head of the worm. Another *Planaria* worm is cut vertically into two halves R and S in such a way that both the cut pieces R and S contain half head each. Which of the cut pieces of the two *Planaria* worms could regenerate to form the complete respective worms?

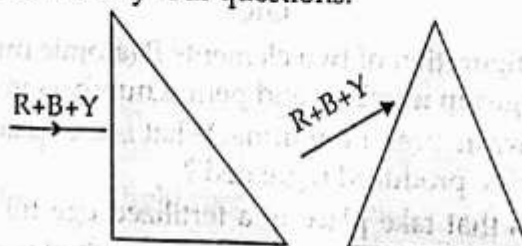
- (i) Only P (ii) Only R and S
(iii) P, R and S (iv) P, Q, R and S

(e) Among the following select the statements that are true regarding the sexual reproduction in flowering plants?

- (1) Fertilisation is a compulsory event
(2) It always results in the formation of zygote
(3) Offsprings formed are clones
(4) It requires two types of gametes

- (i) (1) and (4) (ii) (1), (2) and (3)
(iii) (1), (2) and (4) (iv) (2), (3) and (4)

20. A beam of light consisting of red, blue and yellow colors is incident on the prisms as shown below. Carefully observe and answer any four questions.



- (a) Complete the diagram to show refracted and emergent ray.
- (b) Breaking up of light into the component colours is called
- | | |
|------------------|-----------------|
| (i) dispersion | (ii) refraction |
| (iii) scattering | (iv) reflection |
- (c) When white light enters a glass prism from air, the angle of deviation is least for
- | | |
|--------------------|-------------------|
| (i) blue light | (ii) yellow light |
| (iii) violet light | (iv) red light |
- (d) When white light is incident on a green leaf :
- | |
|---------------------------------------|
| (i) only green colour is absorbed |
| (ii) only green colour is reflected |
| (iii) all other colours are reflected |
| (iv) the leaf appears black |
- (e) What is the cause of dispersion of light on passing through a prism ?

21. What is a combination reaction ? State one example giving balanced chemical equation for the reaction. 2

OR

List four observations that help us to determine whether a chemical reaction has taken place. 2

22. Mention any two trends exhibited by elements when we go from left to right across the period of periodic table. 2

23. A metal 'X' combines with a non-metal 'Y' by the transfer of electrons to form a compound Z.

- | | |
|---|---|
| (i) State the type of bond in compound Z. | 2 |
| (ii) What can you say about the melting point and boiling point of compound Z ? | |
| (iii) Will this compound dissolve in kerosene or petrol ? | |
| (iv) Will this compound be a good conductor of electricity ? | |

24. State any two differences between arteries and veins. 2

25. Accumulation of harmful chemicals in our bodies can be avoided. Explain how this can be achieved ? 2

OR

Why bacteria and fungi are called decomposers? List any two advantages of decomposers to the environment. 2

26. Differentiate a real image from a virtual image giving two points of difference. 2

27. Write the chemical equations involved in the following chemical reactions.

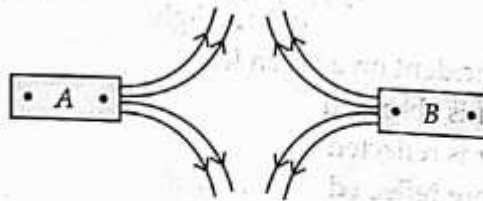
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|-----------------------------------|---|
| (i) White washing. | 3 |
| (ii) Black and white photography. | |

28. State the main aim of classifying elements. Which is more fundamental property of elements that is used in the development of Modern Periodic Table ? Name and state the law based on this fundamental property. On which side of the periodic table one can find metals, non-metals and metalloids ?

OR

Write the electronic configuration of two elements P (atomic number 17) and Q (atomic number 19) and determine their group numbers and period numbers in the Modern Periodic Table ? 3

29. Name one nitrogenous waste present in urine. What is the basic filtration unit of kidney called ? How is the amount of urine produced regulated ? 3
30. State briefly the changes that take place in a fertilized egg till birth of the child in the human female reproductive system. What happens to the egg when it is not fertilized ? 3
31. An object is placed perpendicular to the principal axis of a convex lens of focal length 8 cm. The distance of the object from the lens is 12 cm. Find the position and nature of the image. 3
32. A circuit has a line of 5 A. How many lamps of rating 40 W, 200 V can simultaneously run on this line safely ? 3
33. (a) Magnetic field lines of two bar magnets A and B are as shown below. Name the poles of the magnets facing each other. 3



- (b) Two magnetic field lines never intersect each other. Why ?

34. The electrons in the atoms of four elements A, B, C and D are distributed in three shells having 1, 3, 5 and 7 electrons respectively in their outermost shells. Write the group numbers in which these elements are placed in the Modern Periodic Table. Write the electronic configuration of the atoms of B and D and the molecular formula of the compound formed when B and D combine. 5
35. (a) Draw the diagram of female reproductive system and match and mark the part(s) :
 (i) Where block is created surgically to prevent fertilization.
 (ii) Where CuT is inserted ?
 (iii) Inside which condom can be placed.
 (b) Why do more and more people prefer to use condoms ? What is the principle behind use of condoms ? 5

OR

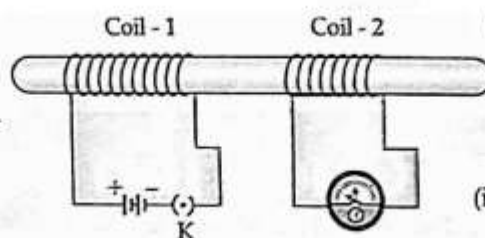
How do Mendel's experiments show that

- (a) Traits may be dominant or recessive ?
 (b) Inheritance of two traits is independent of each other ?
36. (i) With the help of an activity, explain the method of inducing electric current in a coil with a moving magnet. State the rule used to find the direction of electric current thus generated in the coil.
 (ii) Two circular Coils-1 and Coil-2 are kept close to each other as shown in the diagram. Coil-1 is connected to a battery and key and Coil-2 with a galvanometer. State your observation in the galvanometer :

- (a) When key k closed ;
 (b) When key k is opened;
 Give reason for you observations.

OR

- (a) State Fleming's left hand rule ?



- (b) Write the principle of working of an electric motor ?

- (c) Explain the function of

- (i) Armature (ii) Brushes (iii) Split ring