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ಸಂಕೇತ ಸಂಖ್ಯೆ : 83-E

Code No. : 83-E

A

CCE RR

Question Paper Serial No. **600**

ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆಯ ಕ್ರಮ ಸಂಖ್ಯೆ

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತ ವಿಜ್ಞಾನ, ರಸಾಯನ ವಿಜ್ಞಾನ ಮತ್ತು ಜೀವ ವಿಜ್ಞಾನ / Physics, Chemistry & Biology)

(ಇಂಗ್ಲಿಷ್ ಮಾಧ್ಯಮ / English Medium)

(ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / Regular Repeater)

ದಿನಾಂಕ : 27. 06. 2022] [Date : 27. 06. 2022

ಸಮಯ : ಬೆಳಗ್ಗೆ 10-30 ರಿಂದ ಮಧ್ಯಾಹ್ನ 1-45 ರವರೆಗೆ] [Time : 10-30 A.M. to 1-45 P.M.

ಗರಿಷ್ಠ ಅಂಕಗಳು : 80] [Max. Marks : 80

TEAR HERE TO OPEN THE QUESTION PAPER
ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆಯನ್ನು ತೆರೆಯಲು ಇಲ್ಲಿ ಕತ್ತರಿಸಿ

General Instructions to the Candidate :

1. There are *three* parts in the question paper :
   Part A : Physics, Part B : Chemistry, Part C : Biology.
2. This question paper consists of objective and subjective types of 38 questions.
3. This question paper has been sealed by reverse jacket. You have to cut on the right side to open the paper at the time of commencement of the examination. Check whether all the pages of the question paper are intact.
4. Follow the instructions given against both the objective and subjective types of questions.
5. Figures in the right hand margin indicate maximum marks for the questions.
6. The maximum time to answer the paper is given at the top of the question paper. It includes 15 minutes for reading the question paper.

Tear here

PART - A

(PHYSICS)

I. *Four* alternatives are given for each of the following questions / incomplete statements. Choose the correct alternative and write the complete answer along with its letter of alphabet. **2 × 1 = 2**

1. The correct statement among the following related to the concave lens is

(A) converges the light rays

(B) diverges the light rays

(C) forms inverted image

(D) forms real image.

2. The SI unit of resistivity is

(A) ohm (B) volt

(C) watt (D) ohm-metre.

II. Answer the following questions : **3 × 1 = 3**

3. Calculate the power of convex lens with a focal length of + 0·5 m.

4. What are the reasons for occurring overload in an electric circuit ?

5. What is a solar cell ?

III. Answer the following questions : **3 × 2 = 6**

6. An electric bulb with a resistance of 50 Ω is connected to 10 V battery in an electric circuit. Calculate the electric current flowing through the electric bulb and electric power of the bulb.

7. Draw the diagram of a simple electric motor and label 'Split rings' ?

8. Write any two limitations of producing electricity from wind energy.

IV. Answer the following questions : **3 × 3 = 9**

9. a) State the two laws of refraction of light.

b) "The refractive index of diamond is 2·42." Write the meaning of this statement.

10. Draw the ray diagram of image formation when the object is kept at $2F_1$ of the convex lens. With the help of the ray diagram, mention the position and nature of the image formed.

[F_1 : Principal focus of the lens]

OR

Draw the ray diagram of image formation when the object is kept between C and F of the concave mirror. With the help of the ray diagram mention the position and the nature of the image formed.

[F : Principal focus of the mirror, C : Centre of curvature of mirror]

11. List the properties of the magnetic field due to the flow of electric current in a solenoid. What are the two methods of increasing magnetic field in a solenoid ?

V. Answer the following questions : **2 × 4 = 8**

12. a) Write any four uses of concave mirror.

b) An object is placed at a distance of 15 cm on the principal axis in front of a concave lens with a focal length of 10 cm. Find the image distance.

13. a) State Joule's law of heating. Name any two devices that work on the application of this law.

b) Why are the alloys like nichrome used in electrical heating devices ?

OR

a) State Ohm's law. In domestic electric circuit electrical appliances are not connected in series. Why ?

b) Write the factors on which resistance of a conductor depends.

PART - B

(CHEMISTRY)

VI. ***Four*** **alternatives are given for each of the following questions / incomplete statements. Choose the correct alternative and write the complete answer along with its letter of alphabet.** **2 × 1 = 2**

14. The metal that displaces copper from copper sulphate solution is

(A) mercury

(B) gold

(C) iron

(D) silver

15. Number of single bonds found in the molecular structure of propanal is

(A) 8 (B) 6

(C) 7 (D) 5

VII. Answer the following question : **1 × 1 = 1**

16. State the modern periodic law.

VIII. Answer the following questions : **2 × 2 = 4**

17. Draw the diagram of the arrangement of apparatus used to show the electrolysis of water and label the 'graphite rod'.

18. The chemical reaction that takes place between sodium sulphate and barium chloride is called double displacement reaction. Why ? Write the balanced chemical equation for this reaction.

OR

What is the type of chemical reaction in which quicklime is obtained by lime stone (calcium carbonate) ? Write a chemical equation for this reaction.

IX. Answer the following questions : **3 × 3 = 9**

19. Draw the diagram of arrangement of the apparatus to show the reaction of zinc granules with dilute sulphuric acid and testing hydrogen gas by burning. Label the following parts :

    i) Zinc granules

    ii) Soap solution.

20. a) What is neutralisation reaction ? Give an example.

    b) What is the common name of the compound that has molecular formula $CaSO_4 . \frac{1}{2} H_2O$.

21. Write the two reasons for placing oxygen and sulphur in a same group of modern periodic table. Which one of these elements has larger atomic size and why ?

    [Atomic number of oxygen = 8, Atomic number of sulphur = 16]

OR

Write the limitations of Mendeleev's periodic table. Why is silicon called metalloid ?

X. Answer the following question : **1 × 4 = 4**

22. a) Write any two differences between saturated and unsaturated carbon compounds.

b) Write the structural formula of the following carbon compounds :

i) Benzene

ii) Butane

XI. Answer the following question : **1 × 5 = 5**

23. a) Explain the formation of ionic bond between sodium atom and chlorine atom. [Atomic number of sodium is 11, Atomic number of chlorine is 17]

b) List any four general properties of ionic compounds.

PART - C

(BIOLOGY)

XII. ***Four*** **alternatives are given for each of the following questions / incomplete statements. Choose the correct alternative and write the complete answer along with its letter of alphabet.** **4 × 1 = 4**

24. In plants the major function of xylem is the transportation of

(A) water

(B) food

(C) amino acids

(D) oxygen.

25. An example for positive geotropism in plants is

(A) growth of shoot

(B) growth of roots into deep soil

(C) growth of tendrils of creepers

(D) upward growth of roots.

26. Primary consumers in any food chain are always

(A) carnivores

(B) herbivores

(C) higher carnivores

(D) producers.

27. Part of a flower in the plant that develops into fruit is

(A) petal

(B) stigma

(C) ovary

(D) style.

XIII. Answer the following questions : **4 × 1 = 4**

28. Which hormone inhibits the growth of plants ?

29. What is the sex of a child born by receiving *X* chromosome from father ?

30. Nowadays Chlorofluorocarbon (CFC) free refrigerators are being manufactured. Why ?

31. What is 'biological magnification' ?

XIV. Answer the following questions : **3 × 2 = 6**

32. Mention any two effects of non-biodegradable substances on the environment.

OR

Mention any two methods that reduce the problems caused while disposing the wastes.

33. Can the wing of butterfly and the wing of bat be considered as Analogous organs ? If yes, why ? If no, why ?

34. Draw the diagram showing the structure of human excretory system and label 'ureter'.

XV. Answer the following questions : **3 × 3 = 9**

35. Explain the stages of 'double circulation' of the blood in humans.

OR

Mention the events that occur during photosynthesis in plants. What are the methods used by plants to get rid of excretory products ?

36. How does uterus prepare to receive the fertilized egg in woman ? What happens if egg does not fertilise ? Explain.

37. "An individual organism cannot pass the experiences acquired during its life time to the progenies of the next generation." Explain this concept with the help of an illustration.

OR

Pure 'short' pea plant is crossed with pure 'tall' pea plant. Represent the results obtained in F_2 generation of monohybrid cross with the help of checker board and mention the ratio of the types of plants obtained.

XVI. Answer the following question : **1 × 4 = 4**

38. Draw the diagram showing the structure of the human brain and label the following parts :

i) Cerebellum

ii) Mid-brain.