CCE-III-RR/PR/PF/NSR/NSPR(A)/111/7120

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ಆಗಸ್ಟ್ 2024 ರ ಪರೀಕ್ಷೆ-3
AUGUST 2024 EXAMINATION-3

ಒಟ್ಟು ಮುದ್ರಿತ ಪುಟಗಳ ಸಂಖ್ಯೆ : 16]

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ಒಟ್ಟು ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ : 38]

Total No. of Questions : 38]

CCE RR/PR/PF/ NSR/NSPR
FULL SYLLABUS

Question Paper Serial No.

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E**

Code No. : 83-E

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

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

(ಆಂಗ್ಲ ಮಾಧ್ಯಮ / English Medium)

(ಶಾಲಾ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / ಎನ್.ಎಸ್.ಆರ್. / ಎನ್.ಎಸ್.ಪಿ.ಆರ್.)

(Regular Repeater / Private Repeater / Private Fresh / NSR / NSPR)

ದಿನಾಂಕ : 05. 08. 2024] [Date : 05. 08. 2024

ಸಮಯ : ಬೆಳಗ್ಗೆ 10-15 ರಿಂದ ಮಧ್ಯಾಹ್ನ 1-30 ರವರೆಗೆ] [Time : 10-15 A.M. to 1-30 P.M.

ಗರಿಷ್ಠ ಅಂಕಗಳು : 80] [Max. Marks : 80

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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 38 questions in all.
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 ***(Follow the arrow)***. **Do not cut the left side to open the paper.** Check whether all the pages of the question paper are intact.
4. Follow the instructions given against the 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.
7. Ensure that the Version of the question paper distributed to you and the Version printed on your admission ticket is the same.

ಇಲ್ಲಿಂದ ಕತ್ತರಿಸಿ

TEAR HERE TO OPEN THE QUESTION PAPER
ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯನ್ನು ತೆರೆಯಲು ಇಲ್ಲಿ ಕತ್ತರಿಸಿ

05. 08. 2024

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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.** **3 × 1 = 3**

1. SI unit of electric charge is

   (A) coulomb

   (B) ampere

   (C) joule

   (D) volt

2. In Fleming's left hand rule the middle finger represents the direction of

   (A) magnetic field

   (B) current

   (C) movement of conductor

   (D) induced current

3. Type of the mirror used in vehicles as rear view mirror is

(A) plane mirror (B) concave mirror

(C) convex mirror (D) planoconcave mirror

II. Answer the following questions : 2 × 1 = 2

4. Write the symbols of the following components used in an electric circuit.

i) A rheostat

ii) A wire joint.

5. What is spectrum of white light ?

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

6. Give reason :

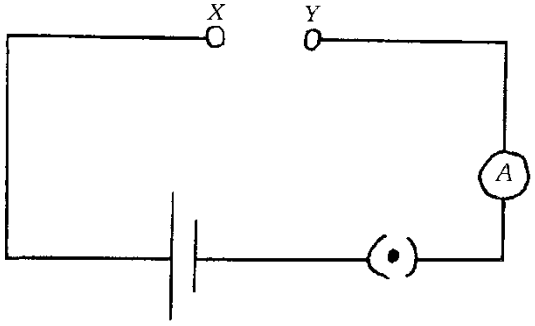
a) The tungsten is used in filaments of electric lamps.

b) In domestic circuits the electric devices are not connected in series.

OR

Placing a 'fuse' in electric circuits is essential. Why ? Explain.

7. Observe the following electric circuit :



When a wire of resistance *'R'* Ω is connected between *'X'* and *'Y'*, then the ammeter reading is 3A. If *'R'* Ω resistance is replaced by *'2R'* Ω in the same circuit, what would be the reading in ammeter ? Give scientific reason for your answer.

8. Observe the given figures and answer the questions that follow :

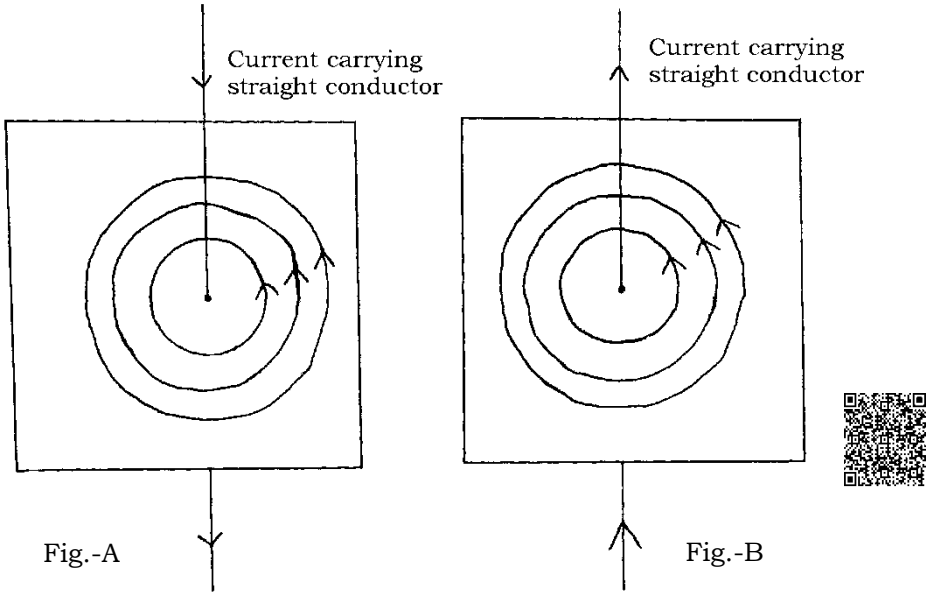


Fig.-A Fig.-B

i) Which of the above figures shows the correct direction of magnetic field ?

ii) Name and state the rule that helped to choose the correct figure.

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

9. A concave lens has focal length of 30 cm. At what distance should the object from the lens be placed so that it forms an image at 20 cm from the lens ?

OR

a) Find the focal length of a convex mirror whose radius of curvature is 6 cm.

b) Find the power of convex lens of focal length 0.2 m.

10. Draw the ray diagram for the image formation in a convex lens when the object is placed between $2F_1$ and F_1. Mention the position and nature of the image formed.

[F_1 : Principal focus of the lens]

11. What are the characteristics of a good source of energy ? Write any two uses of solar cells.

OR

What are the advantages and disadvantages of nuclear energy ?

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

12. Explain Faraday's experiment related to the electromagnetic induction.

13. a) How does the eye accommodate to see far and near objects ?

b) Why do stars twinkle ? Explain.

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. 3 × 1 = 3

14. In the electrolysis of water the gases that are released at cathode and anode and their ratio respectively are,

(A) Hydrogen : Oxygen ; 1 : 2

(B) Oxygen : Hydrogen ; 2 : 1

(C) Hydrogen : Oxygen ; 2 : 1

(D) Oxygen : Hydrogen ; 1 : 2

15. The compound used to remove the permanent hardness of water is

(A) sodium carbonate

(B) sodium hydroxide

(C) sodium hydrogen carbonate

(D) sodium chloride

16. A limitation of Mendeleev's classification of elements among the following is

(A) keeping two elements in the same slot

(B) this classification is only applied up to calcium

(C) this classification worked only for lighter elements

(D) no fixed position is given to hydrogen in the periodic table.

VII. <u>Answer the following questions</u> : **3 × 1 = 3**

17. The molecular formula of the fourth member of a homologous series is C_5H_{10}. Then, determine and write the molecular formulae of first two members of the same series.

18. What are redox reactions ?

19. 250 ml of water is taken in each of beaker *'A'* and beaker *'B'*. About 5 gm of sodium metal is added to the beaker *'A'* and about 5 gm of calcium metal is added to beaker *'B'*. What are the reasons for the observations that have been noticed here ?

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

20. Draw the diagram to show the arrangement of the apparatus used in the refining of copper and label 'anode mud'.

21. An iron nail is immersed in copper sulphate solution. Then what type of chemical reaction happens here ? Write the balanced chemical equation for this reaction.

OR

Balance the following equations :

i) $CH_4 + O_2 \rightarrow CO_2 + H_2O$

ii) $Pb(NO_3)_2 \xrightarrow{Heat} PbO + NO_2 + O_2$

22. Draw the diagram of the arrangement of apparatus showing the reaction of zinc granules with dilute sulphuric acid and testing of hydrogen gas by burning and label the hydrogen gas bubbles.

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

23. What are ionic compounds ? Write any four properties of ionic compounds.

OR

What are alloys ? Write any four physical properties of metals.

24. Solutions *'A', 'B', 'C'* and *'D'* are having pH values of 2, 6, 8 and 13 respectively. Then

i) which solution has more H^+ and which solution has more OH^- ion concentration ? Why ?

ii) which solutions can be made to react each other to get neutral salts ?

25. Observe the given part of periodic table and answer the following questions :

Elements	*a*	*b*	*c*	*d*	*e*
Atomic Number	3	4	10	11	18

i) Which elements have + 1 valency ?

ii) Which elements belong to the group of noble gases ? Why ?

iii) Mention the place of element *'b'* in the modern periodic table.

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

26. a) Write the structures for the following carbon compounds.

i) Cyclohexane

ii) Propanoic acid

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

PART – C

(BIOLOGY)

XI. *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

27. The hormone secreted by the pancreas,

(A) regulates metabolic activities

(B) regulates blood sugar level

(C) stimulates the growth in the body organs

(D) increases breathing rate

28. Suction pressure in plants is required to,

(A) remove the difference in concentrations of ions between the root and soil

(B) transport food in two directions

(C) take up the water to the highest parts

(D) eliminate excess of water from the leaves

XII. Answer the following questions : 3 × 1 = 3

29. "Reflex arcs are more efficient for quick responses in animals." Justify this statement.

30. Draw the diagram of open stomata and label the guard cells.

31. Is self pollination possible in flowers having only stamen ? Clarify your answer.

XIII. Answer the following questions : 2 × 2 = 4

32. The body size of a person is changed due to exercises. Can this change be seen in next generation ? Mention your answer with reason.

33. Observe the given food chain and answer the following questions :

Green plants $\longrightarrow$ Deer $\longrightarrow$ Tiger

T_1 T_2 T_3

i) What amount of energy do green plants have if the energy available to the tiger is 700 kJ ?

ii) The organism of which trophic level has the maximum accumulation of harmful chemicals ? Why ?

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

34. How are the processes of reproduction in hydra and planaria different from each other ? Explain.

OR

How does a fertilized egg in the uterus develop into an embryo ? How does this embryo get nourishment in the mother's womb ? Explain.

35. Draw the diagram showing the structure of human brain. Label the following parts :

i) Cerebrum

ii) Cerebellum

36. Forests are 'biodiversity hot spots'. How ? Local people are the stakeholders of forests. Why ? Explain.

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

37. a) What is speciation ? List the factors responsible for the speciation.

b) What are fossils ? Mention the ways of dating fossils.

OR

a) According to Mendel what are dominant traits and recessive traits ?

b) What is dihybrid cross ? What is the ratio of plant types obtained in the F_2 generation of Mendel's dihybrid experiment ?

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

38. a) How does glucose converts into energy molecule during aerobic respiration ? What is the role of alveoli in the process of respiration ?

b) What are the different excretory strategies found in plants ?