CCE-II-RR/PR/NSR/NSPR(B)/999/8038

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ಜೂನ್ 2024 ರ ಪರೀಕ್ಷೆ - 2
JUNE 2024 EXAMINATION - 2

ಒಟ್ಟು ಮುದ್ರಿತ ಪುಟಗಳ ಸಂಖ್ಯೆ : 16]

Total No. of Printed Pages : 16]

ಒಟ್ಟು ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ : 38]

Total No. of Questions : 38]

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E**

Code No. : 83-E

CCE RR/PR/ NSR/NSPR Reduced Syllabus

Question Paper Serial No.

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

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

(ಆಂಗ್ಲ ಮಾಧ್ಯಮ / English Medium)

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

(Regular Repeater / Private Repeater / NSR / NSPR)

ದಿನಾಂಕ : 20. 06. 2024] [Date : 20. 06. 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

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.

Cut here /ಇಲ್ಲಿ ಕತ್ತರಿಸಿ

TEAR HERE TO OPEN THE QUESTION PAPER
ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯನ್ನು ತೆರೆಯಲು ಇಲ್ಲಿ ಕತ್ತರಿಸಿ

20. 06. 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.** **4 × 1 = 4**

1. To get virtual and erect image by a convex lens, an object is to be placed

(A) beyond $2F_1$

(B) between F_1 and $2F_1$

(C) at focus F_1

(D) between focus F_1 and optical centre O

2. Which of the following lenses would you prefer to use while reading small letters found in a dictionary ?

(A) A convex lens of focal length 60 cm

(B) A concave lens of focal length 60 cm

(C) A convex lens of focal length 6 cm

(D) A concave lens of focal length 6 cm

3. The magnetic field inside a long straight solenoid carrying current

(A) is the same at all points

(B) is zero

(C) decreases as we move towards its end

(D) increases as we move towards its end

4. A light ray enters from a rarer medium to a denser medium. Then the speed of that light ray and its mode of refraction respectively are

(A) increases and bends away from the normal

(B) decreases and bends towards the normal

(C) increases and bends towards the normal

(D) decreases and bends away from the normal

II. <u>Answer the following questions</u> : **2 × 1 = 2**

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

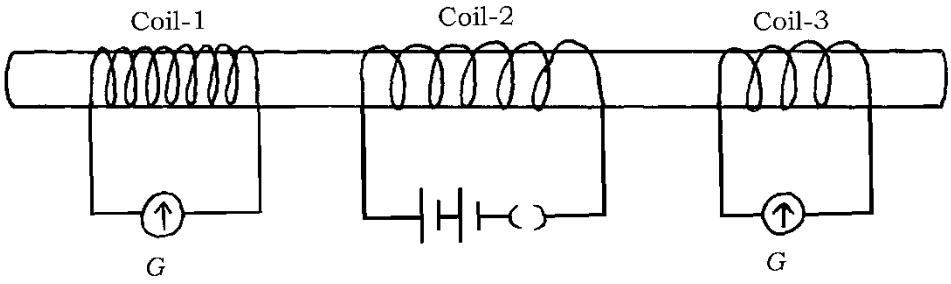
i) Wires crossing without joining

ii) Voltmeter

6. Find the focal length of a lens of power – 4·0 D. What type of lens is this ?

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

7. Observe the given figure :



If the key connected to Coil-2 is plugged, in which of the other two coils more current is induced ? Why ?

8. State two laws of refraction of light.

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

9. A concave lens has focal length of 25 cm. At what distance should the object from the lens be placed so that it forms an image at 20 cm from the lens ? Find the magnification of the image produced by the lens.

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

[F_1 : Principal focus of the lens]

11. a) Mention the function of digester present in bio-gas plant.

b) Mention four properties to support that the bio-gas is an excellent fuel.

OR

a) Mention any four properties of a good source of energy.

b) Mention the principal advantages of solar cells.

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

12. a) Explain an experiment of drawing magnetic field lines around a bar magnet with the help of a compass needle.

b) Mention two properties of magnetic field lines.

OR

a) Explain an experiment to show that a current carrying conductor experiences the force when kept in a magnetic field.

b) How is a simple electric motor converted into a commercial motor ?

VI. Answer the following question : 1 × 5 = 5

13. a) What is resistance of a conductor ? On what factors does the resistance of a conductor depend ?

b) It is advantageous to connect electrical devices in parallel instead of connecting them in series. Why ? Explain.

PART – B

(CHEMISTRY)

VII. *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 molecular formula of propanal is

(A) C_2H_5COOH

(B) C_2H_5CHO

(C) C_3H_5CHO

(D) C_3H_5COOH

15. Aluminium, Iron, Magnesium and Zinc metals reacted with dilute hydrochloric acid. The series that indicates decreasing order of reactivity of these metals is

(A) Mg > Al > Zn > Fe

(B) Al > Mg > Fe > Zn

(C) Fe > Zn > Al > Mg

(D) Fe > Mg > Zn > Al

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

16. 1M acetic acid is mixed with 1M sodium hydroxide solution. Determine the nature of the salt forms here with suitable reason.

17. Write the structures of isomers of butane.

18. Generally ionic compounds have high melting points and boiling points. Why ?

19. "Detergents are better cleansers than soaps." Justify this statement.

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

20. Draw the diagram of arrangement of apparatus to show that acidic solution in water conducts electricity and label dilute HCl solution.

21. What is allotropism ? Write any two allotropes of carbon.

OR

What are amphoteric oxides ? Give two examples.

22. Draw the diagram of arrangement of apparatus to show the action of steam on metal.

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

23. a) What is neutralisation reaction ? What are the nature of the solutions having less than 7 and more than 7 pH values ?

b) Name the acid present in the following substances.

i) Curd

ii) Gastric juice

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

Elements	*p*	*q*	*r*	*s*
Atomic No.	4	5	3	7

i) Find the valence electrons of the elements *'q'* and *'r'*.

ii) Which element has larger atomic size and why ?

iii) Find the most electronegative element and give reason.

OR

The electronic configuration of the three elements *x, y* and *z* are 2,8,7 ; 2,8,8 and 2,8,1 respectively.

i) Which element is most electropositive and why ?

ii) Which element has zero valency and why ?

iii) Predict the type of the chemical bond that forms when *'x'* and *'z'* elements react each other and mention the reason.

25. a) If the molecular formula of first member of a homologous series is C_2H_2, then write the names and the molecular formula of the next two members of the same series.

b) Generally vegetable oils are subjected to hydrogenation. Why ?

XI. <u>Answer the following question</u> : **1 × 4 = 4**

26. a) Write any two chemical properties of metals and non-metals.

b) Name the following :

i) The liquid metal at room temperature

ii) The metal that is stored in kerosene.

PART – C

(BIOLOGY)

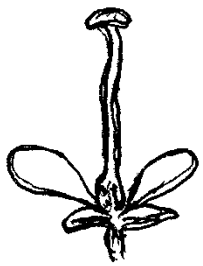
XII. ***Four*** **alternatives are given for each of the following questions / incomplete statements. Choose the correct alternative and write the complete answer along with its letter of alphabet.** **2 × 1 = 2**

27. The material transported by xylem tissue in plants is

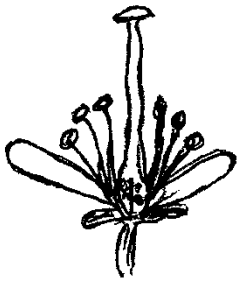
(A) food (B) oxygen

(C) water (D) carbon dioxide

28. The flower that can undergo self pollination among below given figures of flower is



(*P*)



(*Q*)

(*R*)

(A) *'P'* only (B) *'R'* only

(C) Both *'P'* and *'R'* (D) *'Q'* only

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

29. Draw the diagram to show the structure of kidney in the excretory system of human beings.

30. Use of CFCs in refrigerant units is strictly prohibited. Why ?

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

31. Mention any two differences between biodegradable and non-biodegradable substances.

OR

"We must avoid the use of plastics." Give two reasons.

32. How father is responsible to determine sex of a child in humans ? Explain.

33. "If ozone layer is not formed on earth's atmosphere life cannot exist on the earth." Justify this statement with two reasons.

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

34. a) How does 'touch-me-not' plant respond to touch ? Explain.

b) Mention any one function each of 'auxin' and 'abscissic acid' hormones.

OR

a) How muscle cells respond for a nerve impulse ?

b) Mention any one function each of 'insulin' and 'estrogen' hormones in humans.

35. Draw the diagram showing the structure of the longitudinal section of the human brain and label the following parts :

i) Cerebrum

ii) Medulla.

36. Red flowering (*RR*) 4 O'clock plant is crossed with white flowering (*WW*) 4 O'clock plant. There are 25% red flowering, 25% white flowering and 50% hybrids are obtained in F_2 generation. Then,

i) What are the characteristics of plants of F_1 generation ?

ii) Show the results of F_2 generation with the help of a checker board and mention the genotypic ratio.

iii) Determine the trait that can be considered either as 'dominant' or 'recessive' by analysing the results of both F_1 and F_2 generations.

OR

Read, analyse the given situations and answer the questions given below :

Situation 1 : Many vegetables and fruits are now available in different colours and sizes.

Situation 2 : The colour of the wings in the population of Drosophila insects is turning to black due to the increase of carbon in some industrial areas.

i) In which of the situations the genetic drift happens fastly and why ?

ii) Are traits inherit in both of the situations or not ? Justify your answer.

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

37. a) What is sexual reproduction ? Which part of the flower develops into seed ?

b) What is the role of 'testis' and 'prostate' gland in human male reproductive system ?

38. a) Briefly explain the formation of urine in nephrons.

b) How food materials are transported in higher plants ? Explain.