CCE-II-RR/PR/PF/NSR/NSPR(A)/888/4037

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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]

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 : 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

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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

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. The colour that is least scattered by fog and smoke is

   (A) orange

   (B) blue

   (C) red

   (D) violet

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. Identify the wrong statement among the following statements regarding refraction and dispersion of light.

(A) Stars twinkle

(B) Sky appears blue to an astronaut flying at very high altitudes

(C) The sun is visible to us about two minutes before the actual sunrise

(D) Planets do not twinkle

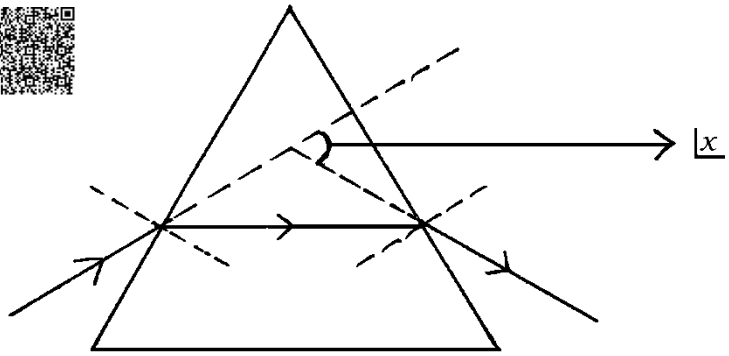
II. <u>Answer the following questions</u> : **2 × 1 = 2**

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

i) Wires crossing without joining

ii) Voltmeter

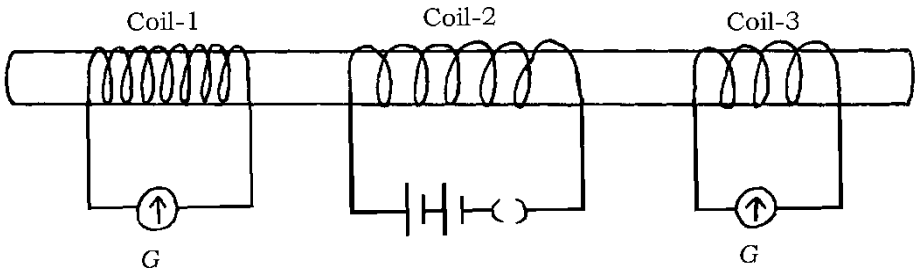
6. Observe the below figure showing the refraction of light through a glass prism.



Name the angle represented as $\angle x$ and give reason for the formation of that angle.

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 reflection 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 diagrams that show :

i) Near point of hypermetropic eye

ii) Hypermetropic eye

iii) Correction for hypermetropic eye.

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 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 are alloys ? Name two alloys of copper.

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 the chemical formula of bleaching powder ? Write any two uses of this salt.

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 the 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 formulae of the next two members of the same series.

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

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

26. a) Write the balanced chemical equations for the following reactions :

i) Calcium carbonate on heating produces calcium oxide and carbon dioxide.

ii) Burning of natural gas (methane) produces carbon dioxide and water.

b) Give reason :

i) Articles made of copper lose their shiny surface when exposed to air.

ii) An iron nail placed in copper sulphate solution slowly turns to brown colour.

PART – C

(BIOLOGY)

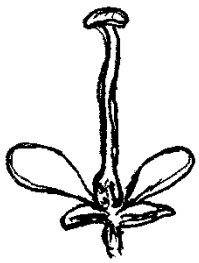
XII. ***Four*** **alternatives are given for each of the following questions / incomplete statements. Choose the correct alternative and write the complete answer along with its letter of alphabet.** **2 × 1 = 2**

27. The material transported by xylem tissue in plants is

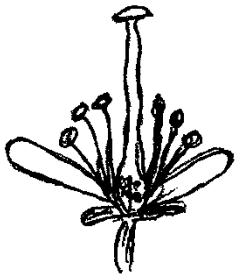
(A) food (B) oxygen

(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 open stomata.

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

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

31. a) "Re-use is better practice than recycle." Give reason.

b) What needs of the local people are fulfilled by the forests ?

OR

a) "Paperless work is a better practice." Give reason.

b) List any two advantages of constructing check dams in agricultural lands.

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

33. In an aquatic eco-system the organisms such as fishes, birds, insect larvae and diatoms are found. Construct a food chain using these organisms. If 10 calories of energy is available to the tertiary consumers in this food chain, what amount of energy was produced in the first trophic level ?

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 the function each of 'insulin' and 'estrogen' hormones in humans.

35. Draw the diagram showing the structure of 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. <u>Answer the following questions</u> : **2 × 4 = 8**

37. a) What is asexual reproduction ? Name the type of asexual reproduction that takes place in 'planaria' and 'rhizopus'.

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.