CCE RF/PF/RR/PR/NSR/NSPR(A)/666/018

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ಮಾರ್ಚ್/ಏಪ್ರಿಲ್ 2024 ರ ಪರೀಕ್ಷೆ - 1
MARCH/APRIL 2024 EXAMINATION-1

ಒಟ್ಟು ಮುದ್ರಿತ ಪುಟಗಳ ಸಂಖ್ಯೆ : 16]

Total No. of Printed Pages : 16]

ಒಟ್ಟು ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ : 38]

Total No. of Questions : 38]

CCE RF/PF/RR/ PR/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 ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / ಶಾಲಾ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಎನ್.ಎಸ್.ಆರ್. / ಎನ್.ಎಸ್.ಪಿ.ಆರ್.)

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

ದಿನಾಂಕ : 30. 03. 2024] [Date : 30. 03. 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

30. 03. 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. Element used in the solar cell is

   (A) carbon (B) silicon

   (C) phosphorus (D) sulphur

2. In an electric circuit to get an equivalent resistance R_s four resistors of 2 Ω each are first connected in series. Later to get an equivalent resistance of R_p the same resistors are connected in parallel. Then the ratio of R_s / R_p is

   (A) 16 : 1 (B) 2 : 1

   (C) 4 : 1 (D) 8 : 1

3. Right statement regarding the colour of the scattered sunlight and the size of scattering atmospheric particles is

   (A) small particles scatter red colour

   (B) big particles scatter blue colour

   (C) big particles scatter violet colour

   (D) too larger particles scatter all colours equally

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

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

   i) Combination of two cells

   ii) Wires crossing without joining.

5. Can an electric heater of 2kW be connected to a domestic circuit rated 15 A and has a potential difference of 220V ? Support your answer.

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

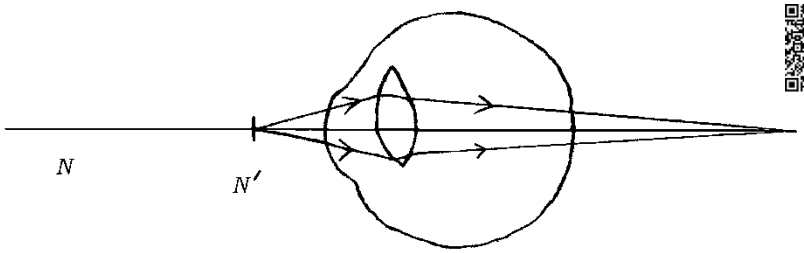
6. What is spectrum of white light ? Name any two phenomena that occur in the atmosphere due to the refraction of light.

OR

What is cataract of eye ? What are the near point and far point of the human eye with normal vision ?

7. "Production of nuclear energy is advantageous and also disadvantageous." Clarify this statement with suitable explanation.

8. A person who has a defect of the eye as shown in the below figure purchases a spectacle having lens of – 2·0D power. Is this lens suitable to rectify the eye defect of that person ? Analyse.



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

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

(F_1 : Principal focus of the lens)

10. 200J of heat is produced each second in a 8Ω resistance. Find the potential difference across the resistor.

OR

An electric refrigerator rated 300W operates 6 hours in a day. What is the cost of the energy to operate it for 30 days at Rs. 7·00 per kWh ?

11. In domestic circuits,

i) What are the reasons for overloading ?

ii) Explain the working of earth wire.

OR

A coil of insulated copper wire is connected to a galvanometer. What will happen if a bar magnet is

i) pushed into the coil ?

ii) withdrawn from inside the coil ?

iii) held stationary inside the coil ?

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

12. a) State the right hand thumb rule. Write any two properties of the magnetic field lines.

b) What is solenoid ? How can this be converted into an electromagnet ?

13. a) State two laws of reflection of light.

b) Write any two differences between concave mirror and convex mirror.

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. Organic compounds obtained by the reaction between carboxylic acid and alcohol are

(A) Aldehydes (B) Ketones

(C) Esters (D) Hydrocarbons

15. Ferrous sulphate crystals lose green colour when heated. Because this compound

(A) decomposes into simpler products

(B) loses water molecules

(C) releases sulphur dioxide gas

(D) produces brown fumes

16. One limitation of Mendeleev's periodic table is, this classification

(A) was applicable only up to calcium

(B) suitable only for lighter elements

(C) has not provided definite position for noble gases

(D) has not assigned a fixed position to hydrogen

VII. Answer the following question : **3 × 1 = 3**

17. Write any two uses of washing soda.

18. What are 'periods' and 'groups' in modern periodic table ?

19. Observe the electronic configurations of four elements given in the following table and answer the below given question :

Elements	*Electronic configuration*
e	2, 8, 2
f	2, 7
g	2, 8, 8, 1
h	2, 8, 7

Arrange these elements in the decreasing order of their atomic radii (atomic size).

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

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

21. Simultaneously red and blue litmus papers are dipped in the brine solution and in the aqueous product produced by subjecting that solution to electrolysis. What changes do you observe in litmus papers ? Support your answer with reasons.

OR

Observe the pH values of four solutions given in the following table and answer the questions below.

Solutions →	*P*	*Q*	*R*	*S*
pH values	10·0	13·7	7·0	1·2

i) Which solution can be used to prepare an antacid ? Why ?

ii) Which two solutions can be used to get a neutral salt ? Why ?

22. Draw the diagram of arrangement of apparatus showing the electrolytic refining of copper and label 'acidified copper sulphate' solution.

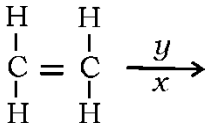
IX. Answer the following questions : 3 × 3 = 9

23. a) Identify the substances that are oxidised and reduced in the following chemical reaction :

$$ZnO + C \rightarrow Zn + CO$$

b) What is rancidity ? Mention any two methods to prevent rancidity.

24. Given below an incomplete equation that represents a chemical process of converting an unsaturated carbon compound to saturated carbon compound.



i) Complete the equation.

ii) Name the gas *'x'* and the substance *'y'* .

iii) What happens if the end products of this reaction react with chlorine in the presence of sunlight ?

25. a) Carbon could not form C^{4+} or C^{4-} ions. Why ?

b) Write the electron dot structure of methane.

OR

a) How micelles are formed during cleansing action of soap ?

b) Which are the salts responsible for hardness of water ? Detergents are effective even in hard water. Why ?

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

26. a) How silver and copper articles lose their shining surface ? How does galvanisation protect iron articles ?

b) Aluminium oxide is an amphoteric oxide. Why ?

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. An illustration for reflex action among the following is,

(A) moving a chair

(B) feeling the taste

(C) withdrawing hands back when unknowingly touch a hot pan

(D) clapping at the end of the function

28. Pea plants with round seeds (*RR*) are crossed with pea plants with wrinkled seeds (*rr*). The percentage of plants that are having *RR* genetic make-up in F_2 generation is,

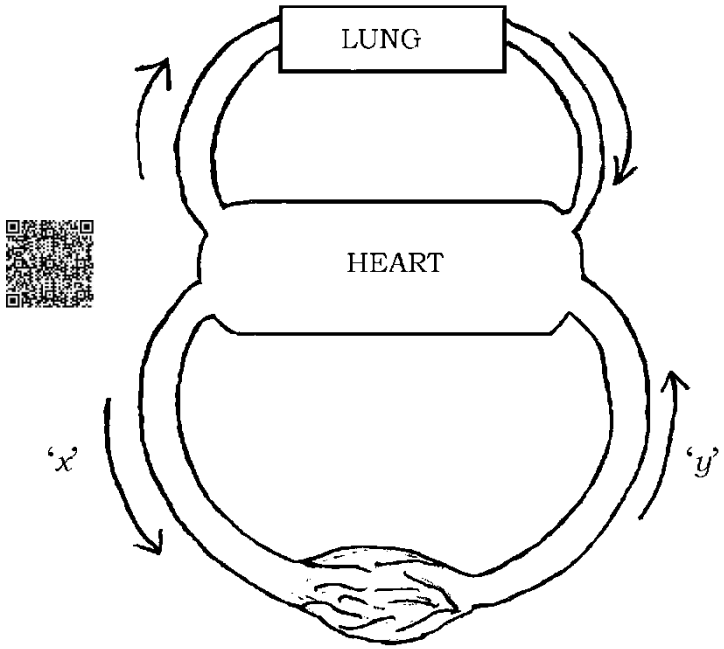
(A) 25% (B) 50%

(C) 30% (D) 75%

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

29. "Though ozone is a deadly poison, it is essential for life on the earth." Justify this statement.

30. Schematic representation of blood circulation in the mammals is given below :



i) Name the blood vessels *'x'* and *'y'*.

ii) Which blood vessel has valves ?

31. "The number of organisms decreases by reaching higher trophic level of a food chain in an ecosystem." Why ?

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

32. Draw the diagram showing the germination of pollen on stigma and label 'pollen tube'.

33. Draw the diagram showing excretory system in human beings and label 'urinary bladder'.

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

34. a) Measures of recharging underground water are better than the storage of water on the surface levels of the ground. How ? Explain.

    b) Reuse is better than recycling. Why ?

35. a) "In human reproduction, the placenta performs a significant role in the development of a foetus into a child." Justify this statement.

    b) How can DNA copying be decided as one of the ways of reproduction in lower organisms ?

36. What product is formed in the first step that takes place in the cytoplasm during the respiration in animals ? Write any two differences between aerobic and anaerobic respiration.

OR

a) In what form are the waste products stored in old xylems of plants ?

b) How do the products of photosynthesis transport to all parts of the plant ?

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

37. a) Which part of the human brain controls the following activities ?

i) Involuntary activities

ii) Thinking process

iii) Posture and balance of the body.

b) What are phytohormones ? Name three phytohormones that promote growth.

OR

a) Name the hormones that control the following activities in man :

i) Regulating sugar level in the blood

ii) Regulating the menstrual cycle

iii) Preparing the body to face situation

iv) Regulating the metabolism.

b) Name any two tropisms that occur in plants. Give an example for each.

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

38. a) Human hands and wings of the bird help to trace the evolutionary relationships. How ? Explain the methods of dating of fossils.

b) Changes in the non-reproductive tissues will not inherit. Why ?