CCE RR/PR/NSR/NSPR(B)/777/3019

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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 RR/PR/ NSR/NSPR
Reduced 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 / ಎನ್.ಎಸ್.ಆರ್. / ಎನ್.ಎಸ್.ಪಿ.ಆರ್.)

(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.

SAMPLE

Cut here /ಇಲ್ಲಿ ಕತ್ತರಿಸಿ

TEAR HERE TO OPEN THE QUESTION PAPER
ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯನ್ನು ತೆರೆಯಲು ಇಲ್ಲಿ ಕತ್ತರಿಸಿ

30. 03. 2024

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ಇಲ್ಲಿಂದ ಕತ್ತರಿಸಿ

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. If the power of a lens is + 4 D then its focal length is

   (A) 0·25 m (B) 0·56 m

   (C) 0·78 m (D) 0·43 m

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. Define the following related to the lens :

i) Optic centre

ii) Aperture

OR

What is refraction of light ? Write the Snell's law of refraction of light.

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

8. "Many solar cells are combined to get solar panel for practical use." Why ?

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 between 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) A ray of light travelling in air enters obliquely into water. Does the light ray bend towards the normal or away from the normal ? Why ?

b) What is absolute refractive index ? The refractive index of diamond is 2·42. What is the meaning of this statement ?

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. Property of carbon giving rise to large molecules by forming covalent bonds with other carbon atoms is

(A) Isomerism

(B) Tetravalency

(C) Catenation

(D) Allotropy

15. Equation that represents neutralisation reaction in the following is

(A) $CaO + CO_2 \rightarrow CaCO_3$

(B) $HCl + NaOH \rightarrow NaCl + H_2O$

(C) $2\ Mg + O_2 \rightarrow 2\ MgO$

(D) $Ca + 2\ H_2O \rightarrow Ca(OH)_2 + H_2$

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

17. Aqueous solution of an acid conducts electricity. Why ?

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. pH values of solutions *P, Q, R* and *S* are 8, 2, 11 and 14 respectively. Which solution among the following,

i) converts blue litmus to red ? Why ?

ii) has more OH^- ion concentration ? Why ?

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) Identify neutral solution and the solution that has more H^+ ion concentration.

22. Draw the diagram of arrangement of apparatus showing the testing the conductivity of a salt solution and label the graphite rod.

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

23. a) What is ductility ? Which is the most ductile metal ?

b) What is sonorous property ? Name the liquid metal.

24. The molecular formula of the first member of organic compounds that are in homologous series is CH_3OH. Determine the molecular formulae of third and fifth members of this group. Write the structural formula of third member.

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

b) Write the electron dot structure of methane.

OR

Ethene is an unsaturated hydrocarbon. Why ? Write the electron dot structure of ethene.

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

26. a) Hydrogen is not evolved when a metal reacts with nitric acid. Why ?

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,

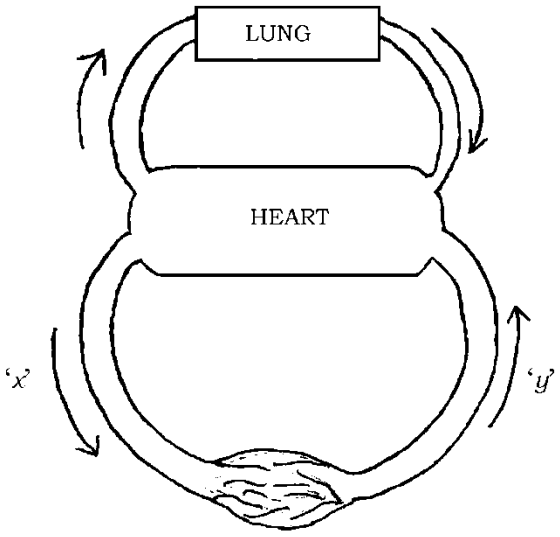
(A) 25% (B) 50%

(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 vesseles *'x'* and *'y'*.

ii) Which blood vessel has valves ?

31. Use and throw culture spoils the environment. How ?

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) Write two differences between bio-degradable and non-biodegradable wastes.

b) Which is the chemical responsible for the depletion of ozone layer ?

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. How does lymph differ from blood ? Mention its two functions.

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 which 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 ?

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