

CCE RR

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E**

Code No. : **83-E**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತಶಾಸ್ತ್ರ, ರಸಾಯನಶಾಸ್ತ್ರ ಮತ್ತು ಜೀವಶಾಸ್ತ್ರ / **Physics, Chemistry & Biology**)

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / **English Version**)

(ಹೊಸ ಪಠ್ಯಕ್ರಮ / **New Syllabus**)

(ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / **Regular Repeater**)

General Instructions :

- i) The Question-cum-Answer Booklet consists of objective and subjective types of questions having 42 questions.
- ii) Space has been provided against each objective type question. You have to choose the correct choice and write the complete answer along with its letter in the space provided.
- iii) For subjective type questions enough space for each question has been provided. You have to answer the questions in the space.
- iv) Candidate should not write the answer with pencil. Answers written in pencil will not be evaluated. (Except Graphs, Diagrams & Maps)
- v) Answer only one choice each for the choice questions.
- vi) Follow the instructions given against both the objective and subjective types of questions.
- vii) In case of Multiple Choice, Fill in the blanks and Matching questions, scratching / rewriting / marking is not permitted, thereby rendering to disqualification for evaluation.
- viii) **Space for Rough Work** has been printed and provided at the bottom of each page.
- ix) Candidates have extra 15 minutes for reading the question paper.
- x) Do not write anything in the space provided in the right side margin.

(SPACE FOR ROUGH WORK)



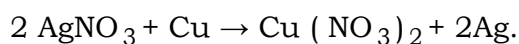
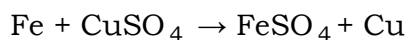
Four alternatives are given for each of the following questions / incomplete statements. Only one of them is correct or most appropriate. Choose the correct alternative and write the complete answer along with its letter in the space provided against each question. $10 \times 1 = 10$

1. The solar device used in traffic signal light works on the following principle.
(A) Conservation of momentum (B) Doppler effect
(C) Photovoltaic effect (D) Electromagnetic induction.
2. The compounds that should be added to the raw materials in the preparation of red coloured glass are
(A) Ferric compounds
(B) Cuprous compounds
(C) Cobalt compounds
(D) Ferrous and chromium compounds.
3. One of the best solutions to manage non-biodegradable wastes is
(A) burning (B) dumping
(C) burying (D) recycling.
4. In which of the following doped semi-conductors majority of charge carriers are holes ?
(A) Antimony doped with germanium
(B) Boron doped with silicon
(C) Arsenic doped with silicon
(D) Phosphorus doped with germanium.

(SPACE FOR ROUGH WORK)



5. Study the following chemical reactions.



The metals present in the reactions can be written in the increasing order of reactivity as

- (A) Fe Cu Ag (B) Cu Fe Ag
(C) Ag Fe Cu (D) Ag Cu Fe.

6. Correct group amongst the following is

- (A) Meristematic — thick walled cells, — growth, stores food
tissue nucleated
(B) Aerenchyma — cells loosely arranged, — least specialised
enucleated
(C) Phloem — complex permanent — transports food,
tissue, elongated cells mechanical support
(D) Collenchyma — complex permanent — growth, mechanical
tissue, cell wall thick support.
at corners

7. The earthen pots prepared by using clay only are generally

- (A) porous (B) non-porous
(C) conductors of electricity (D) transparent.

8. Analyse the relationship and choose the correct answer :

Gonorrhoea : Neisseria :: Syphilis :

- (A) Streptococci (B) Staphylococci
(C) Treponema (D) Mycobacterium.

(SPACE FOR ROUGH WORK)



9. In the following fatty acids, the acid obtained from the alkene is
 (A) $C_{17}H_{35}COOH$ (B) $C_{16}H_{31}COOH$
 (C) $C_{14}H_{29}COOH$ (D) $C_{15}H_{31}COOH$.
10. In a transformer the number of turns in the primary coil is 200 and secondary coil is 600. The ratio between the electric current in the primary and secondary respectively is
 (A) 1 : 4 (B) 4 : 1
 (C) 1 : 3 (D) 3 : 1.
11. Match the names of the plants given in **Column-A** with their characteristics given in **Columns-B** and **C**. Write the answers in the space provided : $4 \times 1 = 4$

Plants		Characteristics	
Column- A	Column- B	Column- C	
(A) Red algae	(a) Seeds not enclosed by fruit, non-flowering	(i)	Vegetative reproduction — fragmentation, rhizoids are absent
(B) Marchantia	(b) Seeds enclosed by fruits, tripetalous	(ii)	Reticulate veins, presence of primary root
(C) Pinus	(c) Thalloid structure, phycoerythrin in excess	(iii)	Gametophyte — adult plant body, rhizoids are present
(D) Mustard	(d) Thalloid structure, sporophyte is chlorophyllous	(iv)	Parallel venation, primary root absent
	(e) Seeds enclosed by fruit, tetrapetalous	(v)	Cones are the reproductive structures, microspores contain female gametes
	(f) Thalloid structure, sporophyte is non-chlorophyllous	(vi)	Cones are the reproductive structures, megaspores contain female gametes.

(SPACE FOR ROUGH WORK)



Answer the following questions in *one* sentence each :

$7 \times 1 = 7$

12. Write the functional groups present in a molecule of Glycine.
13. "A conductor carrying electric current experiences a mechanical force if kept in a magnetic field." Which device works on this principle ?
14. What are the functions of exoskeleton of birds ?
15. What is electroplating ?
16. In Indian system of medicine, use of jaggery is recommended. Give reason.
17. Name any two seeds of plant which are used as source of bio-diesel.
18. Name the hormones produced when glucose level is high or low in the blood.

Answer the following questions in two or three sentences each : $16 \times 2 = 32$

19. Write any four measures to control air pollution.
20. Draw the diagram of a petrol engine and label the parts.
21. The frequency of a sound wave is 256 Hz and its wavelength is 1.2 m. Calculate its wave velocity.
22. Draw the diagram showing the structure of HIV.
23. Write the disadvantages of a steam engine.
24. Write the balanced chemical equation for the following :
 - (a) Silica is heated with coke.
 - (b) Silicon is heated with coke.
25. Write the two laws of heredity formulated by Mendel.

OR

What is DNA replication ? Write the chemical composition of DNA.

(SPACE FOR ROUGH WORK)



26. Draw the diagram of an electrolytic cell of copper chloride solution.
27. On what factors does the induced electromotive force depend ?
28. Arrange the following human ancestral races in chronological order and write one salient feature of them :
 - (a) Australopithecus
 - (b) Cro-Magnon
 - (c) Zinzzanthropus
 - (d) Neanderthal man.

OR

Differentiate between Caucasoids and Mongoloids.

29. A diode allows the electric current to flow, when it is in forward bias, but if it is in reverse bias it will not allow the electric current to flow. Why ?
30. In the extraction of aluminium from alumina, liquid cryolite is used. Give reason.

OR

Write the constituents and the uses of the following alloys :

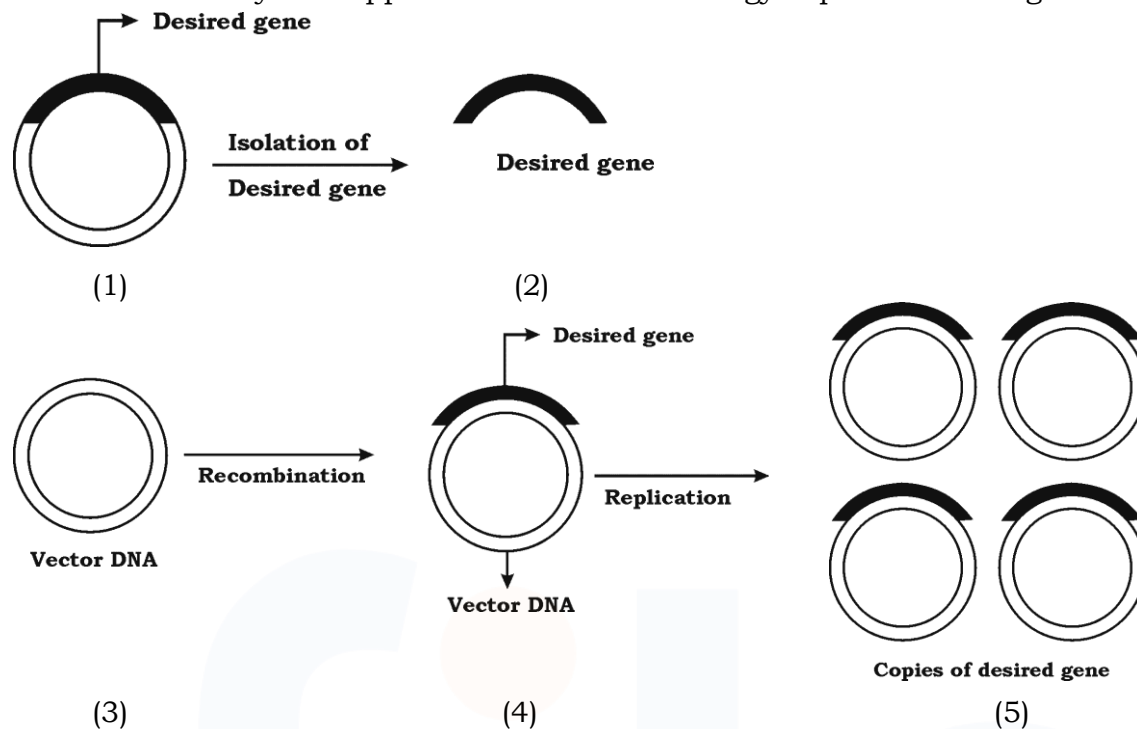
- (a) Brass
- (b) Invar steel.
31. Black coloured guinea pig (BB) is crossed with white coloured guinea pig (bb). Find out the ratio of the types of the offsprings produced in the F_2 generation with the help of a checker board.
32. Write the applications of Boyle's law in daily life.

OR

State the relationship between rate of diffusion and mass of gas.

(SPACE FOR ROUGH WORK)

33. Mention any four applications of the technology depicted in the figure.



34. What is the role of enzyme invertase and zymase in the manufacture of ethanol from molasses ?

OR

What is the role of slaked lime and animal charcoal in the manufacture of sugar from sugarcane ?

Answer the following questions :

$5 \times 3 = 15$

35. Draw a diagram of nuclear power reactor and label the parts.

36. Let the atomic numbers of the elements v , w , x , y and z respectively be equal to 7, 10, 12, 4 and 19 with reference to the modern periodic table.

Answer the following questions :

- Which of the elements in the above is noble gas ?
- Which of the elements belong to S-block ?
- Which element has more atomic size ?

(SPACE FOR ROUGH WORK)

37. Draw a diagram of the blast furnace used in the extraction of Iron and label the parts.
38. Explain the structure and function of neuron.

OR

Epidermis plays an important role in the survival of a plant. Explain.

39. How does an ultrasound scanner work ? Explain. Write one use of it.

OR

How does a Sonar work ? Explain. Mention its uses.

Answer the following :

$3 \times 4 = 12$

40. (a) Black holes are invisible. Why ? How are they identified ?
- (b) How do multistage rockets differ from single stage rocket ? Explain.

OR

(a) Write the mathematical equation to calculate orbital velocity of a satellite. Write the meanings of the symbols used.

(b) Explain how a protostar is formed.

41. Draw a diagram showing the vertical section of human eyeball and label the following parts :

(a) Cornea

(b) Yellow spot.

42. An experiment is conducted in the laboratory by heating the mixture of sodium acetate and sodalime. With respect to the above experiment answer the following :

(a) Name the gas evolved and write its molecular formula.

(b) Write the balanced chemical equation for the above reaction.

(c) How the gas evolved is collected ?

(d) The gas liberated does not react with nitric acid. Give reason.

(SPACE FOR ROUGH WORK)

