ಒಟ್ಟು ಮುದ್ರಿತ ಪುಟಗಳ ಸಂಖ್ಯೆ : 12]

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ಒಟ್ಟು ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ : 42]

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ಸಂಕೇತ ಸಂಖ್ಯೆ : 83-E

Code No. : 83-E

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Question Paper Serial No. **61**

ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯ ಕ್ರಮ ಸಂಖ್ಯೆ

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

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

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

(ಹಳೆ ಪಠ್ಯಕ್ರಮ / Old Syllabus)

(ಪುನರಾವರ್ತಿತ ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / Regular Repeater)

ದಿನಾಂಕ : 30. 03. 2020] [Date : 30. 03. 2020

ಸಮಯ : ಬೆಳಗ್ಗೆ 9-30 ರಿಂದ ಮಧ್ಯಾಹ್ನ–12-45 ರವರೆಗೆ] [Time : 9-30 A.M. to 12-45 P.M.

ಗರಿಷ್ಠ ಅಂಕಗಳು : 80] [Max. Marks : 80

TEAR HERE TO OPEN THE QUESTION PAPER
ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯನ್ನು ತೆರೆಯಲು ಇಲ್ಲಿ ಕತ್ತರಿಸಿ

General Instructions to the Candidate :

1. This Question Paper consists of 42 objective and subjective types of questions.
2. 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. Check whether all the pages of the question paper are intact.
3. Follow the instructions given against both the objective and subjective types of questions.
4. Figures in the right hand margin indicate maximum marks for the questions.
5. 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.

Tear here

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. $10 \times 1 = 10$

1. During the evaporation of cleaned sugarcane juice, the reason to reduce the pressure surrounding it is, to

(A) increase the boiling point of sugarcane juice

(B) decolourise the sugar

(C) decrease the boiling point of sugarcane juice

(D) increase the size of the sugar crystals.

2. The function of parathormone is to regulate

(A) glucose level in the blood

(B) calcium salts in blood and bones

(C) heartbeat, breathing rate

(D) growth and development of the body.

3. A ship sends ultrasonic sound. This sound returns from the seabed and is detected after 6s. If the speed of ultrasonic sound through seawater is $1{\cdot}5\ kms^{-1}$, the depth of the sea is

(A) 5 km (B) 5·5 km

(C) 3·5 km (D) 4·5 km.

4. Sodium chloride in its aqueous solution is a strong electrolyte, because it

(A) dissociates completely

(B) is a covalent compound

(C) does not dissociate

(D) dissociates incompletely.

5. A device used to convert alternating current into direct current is

(A) transistor

(B) diode

(C) dynamo

(D) motor.

6. With reference to the working of a rocket, in the equation $RV_{ex} = Ma$, R stands for

(A) resistance

(B) acceleration

(C) rate of fuel consumption

(D) mass.

7. The technology of developing genetically similar molecules, cells, tissues or organisms from a common precursor in laboratory condition is

(A) cloning

(B) DNA fingerprint technology

(C) genetic engineering

(D) Recombinant DNA technology.

8. Biofuel is ecofriendly because, it

(A) increases the temperature of the atmosphere

(B) produces less amount of carbon dioxide when burnt

(C) is a fossil fuel

(D) is a conventional source of energy.

9. The hydrocarbon that undergoes hydrogenation among the following is

(A) CH_4

(B) C_2H_6

(C) C_2H_2

(D) C_3H_8.

10. If phloem of a plant is removed, then the most affected process is

(A) food conduction

(B) water conduction

(C) removal of wastes

(D) mineral conduction.

11. Match the names of organic compounds given in ***Column-A*** with their molecular formula given in ***Column-B*** and write the answer along with its letters : $4 \times 1 = 4$

Column-A	***Column-B***
(A) Propane	(i) C_4H_8
(B) Butene	(ii) C_4H_{10}
(C) Cyclohexane	(iii) C_6H_6
(D) Propyne	(iv) C_3H_8
	(v) C_6H_{12}
	(vi) C_4H_6
	(vii) C_3H_4.

Answer the following questions : $7 \times 1 = 7$

12. What is a solar cell ?

13. What is catenation ?

14. Ligaments help in the movement of bones. Why ?

15. Draw the symbolic representation of a transformer.

16. What is nuclear fission reaction ?

17. Name the greenhouse gases in the atmosphere.

18. Mention the important features of a star which is in white dwarf stage.

Answer the following questions : $16 \times 2 = 32$

19. List the characteristic features that we share with other primates.

20. A bus which is in clutch gear produces waves of frequency 33 Hz. If the velocity of waves is 330 ms^{-1}, then find the wavelength of the waves.

21. Explain the method of extraction of crystalline silicon. Write the balanced chemical equation of the reaction taking place in this process.

OR

Write balanced chemical equations for the following chemical reactions :

a) Reaction of amorphous silicon with steam

b) Reaction of amorphous silicon with oxygen.

22. The production of genetically modified plants is widely used than the production of mutant plants nowadays. Analyse with reasons.

23. Explain the functions of the following components in a nuclear power reactor :

a) Control rods

b) Moderator.

OR

Write two differences between chemical reactions and nuclear reactions.

24. Draw the diagram of the apparatus showing electrolysis and label anode.

25. Mention any four adaptations which enable the birds to fly.

OR

What is metamorphosis ? Give two examples of vertebrates that exhibit metamorphosis in their life cycle.

26. Draw the circuit symbol of an *n-p-n* transistor. Label the heavily doped part.

27. What is fermentation ? Write the three steps involved in the fermentation of molasses.

OR

What are the two main sources of sucrose ? Name the two monosaccharides in sucrose molecule.

28. Write any two differences between striped muscles and unstriped muscles.

OR

Mention the features of meristematic tissues.

29. Draw the diagram of a single staged rocket and label payload.

30. $4l$ of a gas is enclosed in a vessel at 4×10^5 Pa pressure. It is allowed to expand to $8l$ under constant temperature. Find the final pressure of the gas in the vessel.

31. Brown spots and cracks were observed on the leaves of plants in some regions after a rainfall. Analyse the reasons for these changes.

32. Draw the diagram of the apparatus used in the extraction of aluminium from alumina and label molten aluminium.

33. An astronomer observes two sources of light *'A'* and *'B'* continuously. He identifies that *'A'* shows red shift and *'B'* shows blue shift. What is the reason for this ? Analyse.

34. Explain the method of preparation of safety glass and mention its important property.

Answer the following questions : $5 \times 3 = 15$

35. Mention the differences between Mango and Sugarcane plants with reference to the following factors :

a) Leaf

b) Seed germination

c) Structure of root.

36. a) If an AC source of 250 volts has to be stepped down to 10 volts, then what should be the turns ratio of the primary coil and secondary coil ?

b) Mention the factors on which the induced *e.m.f.* in the secondary coil of a transformer depend.

OR

Explain Faraday's experiment of electromagnetic induction.

37. Draw the diagram showing the structure of HIV. Label the following parts :

a) Reverse transcriptase

b) Fatty layer.

38. Observe the following table :

Element	A	B	C	D
Atomic Number	12	2	16	20

Identify the element,

a) which is a noble gas

b) having highest atomic size

c) having highest ionisation energy .

Give suitable reason for your answer.

39. Round seeds producing dominant pea plant is hybridised with wrinkled seeds producing recessive pea plant. Draw the checker board showing the results obtained in the F_2 generation. Write the genotypic ratio.

OR

Mention the applications of biotechnology.

Answer the following questions : $3 \times 4 = 12$

40. a) Write any three differences between diesel engine and petrol engine.

b) 'An engine is 40% efficient.' What is the meaning of this statement ?

OR

Explain the expansion stroke and the exhaust stroke in the working of a petrol engine.

41. a) List any four physical properties of metals.

b) What are alloys ? Mention two uses of stainless steel.

42. Draw the diagram showing the internal structure of human ear. Label the following parts :

i) Ear drum

ii) Auditory nerves.