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SL. No. : Q

ಒಟ್ಟು ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ : 52]
Total No. of Questions : 52][ಒಟ್ಟು ಮುದ್ರಿತ ಪುಟಗಳ ಸಂಖ್ಯೆ : 12
[Total No. of Printed Pages : 12**CCE PR
UNREVISED**ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E**Code No. : **83-E**

ಇಲ್ಲಿಂದ ಕತ್ತರಿಸಿ

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE(ಭೌತಶಾಸ್ತ್ರ, ರಸಾಯನಶಾಸ್ತ್ರ ಮತ್ತು ಜೀವಶಾಸ್ತ್ರ / **Physics, Chemistry & Biology**)(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / **English Version**)(ಹಳೆ ಪಠ್ಯಕ್ರಮ / **Old Syllabus**)(ಪುನರಾವರ್ತಿತ ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / **Private Repeater**)

ದಿನಾಂಕ : 02. 04. 2019]

[Date : 02. 04. 2019

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

ಗರಿಷ್ಠ ಅಂಕಗಳು : 100]

[Max. Marks : 100

General Instructions to the Candidate :

1. This Question Paper consists of 52 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 TO OPEN THE QUESTION PAPER

ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯನ್ನು ತೆರೆಯಲು ಇಲ್ಲಿ ಕತ್ತರಿಸಿ

Tear here

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[Turn over

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 of alphabet.

$10 \times 1 = 10$

1. The principle of working of solar cells is
 - (A) magnetic effect
 - (B) electromagnetic induction
 - (C) chemical effect
 - (D) photovoltaic effect

2. The hormone which inhibits the growth of the plants is
 - (A) auxin
 - (B) abscisic acid
 - (C) gibberellin
 - (D) cytokinin

3. The metal compound used in the manufacture of yellow coloured glass is
 - (A) cobalt compound
 - (B) ferric compound
 - (C) chromium compound
 - (D) nickel compound

4. The device used to increase or decrease the input A.C. voltage is
 - (A) motor
 - (B) induction coil
 - (C) transformer
 - (D) commutator

5. A tall pea plant is crossed with a dwarf pea plant. If 24 pea plants are obtained in F_2 generation then the correct number of tall and dwarf pea plants are
- (A) 18 tall and 6 dwarf
 (B) 12 tall and 12 dwarf
 (C) 6 tall and 18 dwarf
 (D) 16 tall and 8 dwarf
6. The frequency of the current produced in A.C. dynamo depends on the
- (A) rate of rotation of the armature
 (B) strength of the magnetic field
 (C) number of turns of the coil
 (D) size of the dynamo
7. The general molecular formula of alkynes is
- (A) $C_n H_{2n-2}$ (B) $C_n H_{2n+2}$
 (C) $C_n H_{2n}$ (D) $C_n H_{2n+1}$
8. One of the factors responsible for the depletion of ozone layer is
- (A) reforestation (B) use of biofuel
 (C) use of detergents (D) use of aerosols
9. In the following chemical reaction metal represented by 'X' is
- $$CuSO_4 + \boxed{X} \rightarrow \boxed{X} SO_4 + Cu$$
- (A) Ag (B) Au
 (C) Fe (D) Hg

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10. The aqueous solution that conducts electricity among the following is
- (A) sugar solution
 - (B) fructose solution
 - (C) glucose solution
 - (D) sodium chloride solution
11. The types of animal tissue are given in **Column-A** and their functions are given in **Column-B**. Match them and write the answer along with its letter :

4 × 1 = 4

Column - A

Column - B

- | | |
|-----------------|---|
| (A) Lymph | (i) attaches muscles to the bones |
| (B) Bone marrow | (ii) responds to the stimulus |
| (C) Tendon | (iii) produces antibodies |
| (D) Cartilage | (iv) connects one bone to another |
| | (v) brings bending and stretching movements of the body |
| | (vi) facilitates transport of substances in the body |
| | (vii) produces blood cells |

Answer the following questions.

7 × 1 = 7

12. Wind mills cannot be installed in all the regions. Why ?
13. Doppler effect of sound is not experienced by the listener when the listener and the source of sound move with the same speed and in the same direction. Why ?
14. Name the male and female gametes producing structures found in gametophyte of bryophytes.

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15. State modern periodic law.
16. What are the merits of glazing the earthenwares ?
17. The platelets count in the blood sample of a person is found to be $40,000/\text{mm}^3$.
Then, from which disease that person is suffering ?
18. Write the two functional groups present in salicylic acid.

Answer the following questions.

26 × 2 = 52

19. Four elements of second period of periodic table is given below. Observe the table and answer the following questions :

Elements	Boron	Carbon	Nitrogen	Oxygen
Atomic number	5	6	7	8

- (a) Name the element having (i) highest atomic size (ii) highest ionisation energy.
- (b) Mention the relationship between atomic size and ionisation energy.
20. Nowadays biofuels are used as alternative to fossil fuels. Give scientific reasons.
21. A tuning fork vibrates 6000 times in 60 seconds. If the sound wave produced travels at 330 ms^{-1} then, find its wavelength.
22. Draw the diagram of a petrol engine. Label the following parts :
 - (i) Inlet valve
 - (ii) Piston.
23. Mention the modes of transmission of HIV infection.

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24. Name the acids used in the extraction of amorphous silicon in the following cases.

- (i) To separate magnesium oxide
- (ii) To remove unreacted silica in the chemical reaction.

OR

Write the uses of the following silicon compounds :

- (i) Silicon carbide
 - (ii) Zeolite.
25. Draw the diagram of a dicot plant and label its reproductive part.
26. Write the balanced chemical equations for the following chemical reactions.
- (i) When aluminium reacts with chlorine
 - (ii) When sodium reacts with water.

OR

Molten cryolite is used in the extraction of aluminium. Give reason.

27. State Faraday's laws of electromagnetic induction.
28. A student observes a flying bat and decides that it belongs to the class aves. Whether the student's decision is correct ? Clarify with reasons.
29. What is tissue culture ? Mention any two advantages of this technology.

OR

What is hydroponics ? Mention any two advantages of hydroponics.

30. Draw the diagram of the apparatus used in electroplating. Label the following parts :
- (i) Anode
 - (ii) Cathode.

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31. Mention any four limitations of steam engine.

OR

What is a heat engine ? Mention the function of crank shaft in heat engine.

32. Ultrasonic sound waves sent by a ship return after 6s by reflection from the sea bed. If the speed of ultrasonic wave in sea water is 1530 ms^{-1} then, find the depth of the sea in kilometres.
33. How does the Caucasoid man differ from Mongoloid man in physical features ?

OR

How does the Caucasoid man differ from Congoid man in physical features ?

34. The data obtained in an experiment performed on the pressure and volume of given mass of gas at constant temperature is given in the following table :

Pressure (in pascals)	Volume (in litres)
1.5×10^5	10
2.5×10^5	X
3.0×10^5	5
Y	2

Based on the above data find the values of X and Y.

35. Mention any two differences between longitudinal waves and transverse waves.
36. Draw the diagram showing the structure of HIV. Label the following parts :
- (i) RNA
 - (ii) Protein wall.

37. What is a diode ? Write two applications of diode.
38. Mention the four stages of manufacture of paper.
39. What is diabetes mellitus ? Write the symptoms of this condition.
40. Draw the diagram of D.C. dynamo. Label the following parts :
- (i) Coil on armature
 - (ii) Split rings.
41. What is biotechnology ? Mention any two limitations of biotechnology.
42. What is saponification value ? Mention its importance.
43. State Graham's law of diffusion. Write its mathematical form.
44. Write any two differences between Xylem and Phloem tissues.

Answer the following questions.

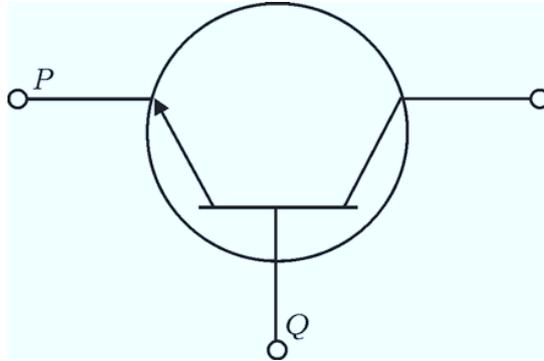
5 × 3 = 15

45. Draw the diagram of a nuclear power reactor. Label the following parts :
- (i) Reflector
 - (ii) Heat exchanger.
46. Explain the process of manufacture of sugar from sugarcane.

OR

Explain the process of manufacture of ethyl alcohol from molasses.

47. Observe the given circuit symbol of a transistor and answer the following questions :



- (i) Name the regions of the transistor marked as *P* and *Q* and mention their function.
- (ii) Mention the type of this transistor.
48. (i) Explain the technology of obtaining DNA fingerprint of an individual.
- (ii) How does the DNA fingerprint technology help to solve legal disputes ?

OR

Write the importance of DNA with respect to the following :

- (i) Heredity
- (ii) Protein synthesis
- (iii) Mutation.

49. Draw the diagram of blast furnace used in the extraction of iron. Label the following :

- (i) Molten iron
- (ii) Slag.

Answer the following questions.

3 × 4 = 12

50. (i) Explain the protostar stage in the stellar evolution.
- (ii) State the law of conservation of momentum. Write the two factors on which acceleration of the rocket depend

OR

- (i) Explain the black hole stage in the stellar evolution. Based on what factors the existence of black hole can be identified ?
- (ii) Mention the relationship between orbital velocity and escape velocity. What is the meaning of the statement “Escape velocity is 11.2 kms^{-1} ” on the earth.
51. Write the structural formula and any *two* uses of the following hydrocarbons :
- (i) Benzene
 - (ii) Toluene.

52. Draw the diagram showing the structure of vertical section of the human eye.

Label the following parts.

(i) Fovea

(ii) Lens.

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