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No.

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Serial No. of
Q. C. A. B.

ಒಟ್ಟು ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ : 36 + 19 = 55]

Total No. of Questions : 36 + 19 = 55]

[ಒಟ್ಟು ಮುದ್ರಿತ ಪುಟಗಳ ಸಂಖ್ಯೆ : 32

[Total No. of Printed Pages : 32

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E**

ವಿಷಯ : ವಿಜ್ಞಾನ

Code No. : **83-E**

Subject : **SCIENCE**

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

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

ದಿನಾಂಕ : 20. 06. 2012]

[Date : 20. 06. 2012

ಸಮಯ : ಬೆಳಿಗ್ಗೆ 09-30 ರಿಂದ ಮಧ್ಯಾಹ್ನ 12-45 ರವರೆಗೆ]

[Time : 09-30 A.M. to 12-45 P.M.

ಪರಮಾವಧಿ ಅಂಕಗಳು : 100]

[Max. Marks : 100

FOR OFFICE USE ONLY

PART - A

Q. No.	Marks	Q. No.	Marks	Q. No.	Marks	Q. No.	Marks	Q. No.	Marks
1.		9.		17.		25.		33.	
2.		10.		18.		26.		34.	
3.		11.		19.		27.		35.	
4.		12.		20.		28.		36.	
5.		13.		21.		29.		×	
6.		14.		22.		30.		×	
7.		15.		23.		31.		×	
8.		16.		24.		32.		×	

Total Marks of Part - A

PART - B

Q. No.	Marks	Q. No.	Marks	Q. No.	Marks	Q. No.	Marks	Q. No.	Marks
37.		41.		45.		49.		53.	
38.		42.		46.		50.		54.	
39.		43.		47.		51.		55.	
40.		44.		48.		52.		×	

Total Marks of Part - B

Total Marks in words		Grand Total	
1. ✓			
2. ✓		✓	✓
Signature of Evaluators	Registration No.	Signature of the Deputy Chief	Signature of the Room Invigilator

General Instructions :

- i) The Question-cum-Answer Booklet consists of objective and subjective types of questions having 55 questions.
- ii) This question-cum-answer booklet contains *two* Parts. **Part - A** contains the questions of Physics and Chemistry and **Part - B** contains Biology questions.
- iii) The question-cum-answer booklet has 36 questions in **Part - A** and 19 questions in **Part - B**.
- iv) Space has been provided against each objective type question. You have to choose the correct choice and write the complete answer along with its alphabet in the space provided.
- v) For subjective type questions enough space for each question has been provided. You have to answer the questions in the space.
- vi) Follow the instructions given against both the objective and subjective types of questions.
- vii) Candidate should not write the answer with pencil. Answers written in pencil will not be evaluated. (Except Graphs, Diagrams & Maps)
- viii) In case of Multiple Choice, Fill in the blanks and Matching questions, scratching / rewriting / marking is not permitted, thereby rendering to disqualification for evaluation.
- ix) **Space for Rough Work** has been printed and provided at the bottom of each page.
- x) Candidates have extra 15 minutes for reading the question paper.

PART - A**(Physics & Chemistry)**

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 alphabet in the space provided against each question. 10 × 1 = 10

1. In an experiment of photoelectric effect the number of photoelectrons has to be increased without changing their frequency. The suitable step to be taken about the incident radiation for this is
 - (A) increasing intensity without changing frequency
 - (B) increase both frequency and intensity
 - (C) increase frequency without increasing intensity
 - (D) increasing only frequency.

Ans : _____

(SPACE FOR ROUGH WORK)

2. To distinguish between real gems and artificial gems a merchant may use which of the following radiations ?
- (A) Infrared rays
 - (B) γ -rays
 - (C) X-rays
 - (D) Ultraviolet rays.

Ans : _____

3. The function of carburettor is to allow
- (A) only petrol into the engine
 - (B) only air into the engine
 - (C) mixture of petrol and air into the engine
 - (D) diesel and air into the engine.

Ans : _____

4. Which of the following engines is more efficient ?

Heat utilised	Work done
(A) 80 kilojoules	32 kilojoules
(B) 60 kilojoules	12 kilojoules
(C) 50 kilojoules	25 kilojoules
(D) 90 kilojoules	27 kilojoules.

Ans : _____

(SPACE FOR ROUGH WORK)

5. In echo cardiography (ECG) the frequency of the sound waves used is

- (A) 20 hertz to 20 kilohertz
- (B) 20 hertz to 2 kilohertz
- (C) beyond 20 kilohertz
- (D) below 20 hertz.

Ans : _____

6. In Kaiga Atomic Power reactor plant, the fuel that can be used is

- (A) Coal
- (B) Uranium
- (C) Petrol
- (D) Natural gas.

Ans : _____

7. $C_{10}H_{22} \xrightarrow{\text{Temperature}} C_5H_{12} + x$

If this equation is considered as an experiment of cracking, the compound in the place of x is

- (A) C_5H_{10}
- (B) C_5H_{12}
- (C) C_5H_8
- (D) C_5H_5

Ans : _____

(SPACE FOR ROUGH WORK)

8. Polymer used to make gasket of pressure cooker is

- (A) Polythene
- (B) Nylon
- (C) Teflon
- (D) Thiokol.

Ans : _____

9. The common raw material used in the preparation of soap and detergent is

- (A) sulphuric acid
- (B) sodium hydroxide
- (C) stearic acid
- (D) long chain hydrocarbons.

Ans : _____

10. Detergents are more efficient than soaps in cleaning, yet you have to limit the use of detergents because

- (A) they are costly
- (B) they are not ecofriendly
- (C) their production cost is high
- (D) they produce scum in hard water.

Ans : _____

(SPACE FOR ROUGH WORK)

Fill in the blanks :

3 × 1 = 3

11. The more doped region in the transistor is

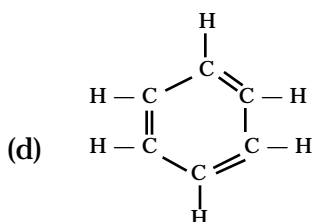
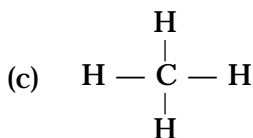
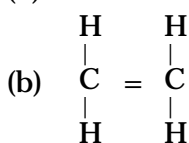
12. The velocity of ultrasound in water is 1.5 km/s. The distance travelled by it in water in 3 seconds is

13. The device used to provide electricity in the instruments of artificial satellites is

14. Match the items of **List-A** with items of **List-B**. Write the correct answer in the space provided :

4 × 1 = 4

List-A



List-B

(i) Methane

(ii) Toluene

(iii) Ethene

(iv) Ethane

(v) Ethyne

(vi) Benzene

(vii) Propene

Ans. : a) _____
 b) _____
 c) _____
 d) _____

(SPACE FOR ROUGH WORK)

Answer the following :

6 × 1 = 6

15. In centrifuge how are particles of different densities separated ?

16. What is centripetal force ?

17. Name our Galaxy.

(SPACE FOR ROUGH WORK)

18. What happens when the glass cover on the solar water heater panel is removed ?

19. Karnataka Government has undertaken a programme of distributing fluorescent tubes. How is it a remedy for energy crisis ?

20. How do you test that water supplied to your home is temporarily hard water ?

(SPACE FOR ROUGH WORK)

Answer the following questions :

9 × 2 = 18

21. What should be the angle between thumb (main) finger, forefinger and central finger in Fleming's left hand rule ? What does each finger indicate ?

22. Draw a neat diagram of AC dynamo and represent the current in it in the external circuit by a graph.

(SPACE FOR ROUGH WORK)

23. State the difference between laser light and ordinary light.

24. Draw a block diagram of a simple radio receiver.

(SPACE FOR ROUGH WORK)

25. Draw a sketch of petrol engine and label the parts.

(SPACE FOR ROUGH WORK)

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

(SPACE FOR ROUGH WORK)

Answer the following :

3 × 4 = 12

34. a) Multistage rockets are used in launching artificial satellites. Why ?

- b) What is escape velocity ?

- c) Write the equation for orbital velocity of a satellite orbiting the earth at a height of h from the surface of the earth.

(SPACE FOR ROUGH WORK)

36. Draw a neat diagram of blast furnace used in the extraction of iron and label the parts.

(SPACE FOR ROUGH WORK)

PART - B

(Biology)

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 alphabet in the space provided against each question. 5 × 1 = 5

37. Hepatitis-B does not spread through

- (A) contaminated food
- (B) mosquito bite
- (C) sexual contact with infected person
- (D) sharing unsterilized needles.

Ans : _____

38. Dropsy : Argemone oil :: Minamata :

- (A) Methyl cyanide
- (B) Methyl bromide
- (C) Methyl chloride
- (D) Methyl mercury.

Ans : _____

(SPACE FOR ROUGH WORK)

39. Saplings developed during tissue culture are exclusively the products of

- (A) Mitosis
- (B) Meiosis
- (C) Karyokinesis
- (D) Cytokinesis.

Ans : _____

40. Cotton clothes are basically cells of

- (A) Cambium
- (B) Collenchyma
- (C) Sclerenchyma
- (D) Scleride.

Ans : _____

41. While purchasing a sealed packet of ghee, one should look for which mark ?

- (A) ISI
- (B) AGMARK
- (C) FPO
- (D) ISO.

Ans : _____

(SPACE FOR ROUGH WORK)

42. Match the plants given in **Column-A** with their characters in **Column-B** : $4 \times 1 = 4$

Column-A	Column-B
(a) Riccia	(i) prothallus, with vascular tissues
(b) Cycas	(ii) stem, without vascular tissues
(c) Ectocarpus	(iii) rhizoids, without vascular tissues
(d) Selaginella	(iv) stem, with vascular tissues
	(v) prothallus, without vascular tissues
	(vi) thallus, without vascular tissues
	(vii) rhizoids, with vascular tissues

Ans. : (a) _____
(b) _____
(c) _____
(d) _____

Answer the following in a sentence each : $4 \times 1 = 4$

43. What is recombinant DNA technology ?

(SPACE FOR ROUGH WORK)

44. Write two salient features of chordates.

45. Write the function of the gland which is embedded in the gland shown below ?



46. A boy who resides near a powerloom has developed a habit of speaking loudly everywhere. Give a scientific reason.

(SPACE FOR ROUGH WORK)

49. Why do drunken drivers tend to commit more accidents than others who do not drink and drive ? Mention the part of the brain which may not function properly during this time.

50. Trace the route of sound waves from outer ear to inner ear.

(SPACE FOR ROUGH WORK)

Answer the following questions :

2 × 3 = 6

53. a) Mention one difference between nitrification and denitrification.

b) The effluents released into the river by chemical industry is more than the norms. What may be the effect on fauna in this river ?

c) What role do saprophytes play in ecological balance ?

(SPACE FOR ROUGH WORK)

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54. Draw the diagram of neuron and label any two parts.

(SPACE FOR ROUGH WORK)

55. Draw a diagram of vertical section of human eye and label the following parts : 4

a) Fovea

b) Lens.

(SPACE FOR ROUGH WORK)

(SPACE FOR ROUGH WORK)