

Roll
No.

--	--	--	--	--	--	--	--	--	--

Serial No. of
G. 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 : 17. 06. 2011]

[Date : 17. 06. 2011

ಸಮಯ : ಬೆಳಿಗ್ಗೆ 10-30 ರಿಂದ ಮಧ್ಯಾಹ್ನ 1-45 ರವರೆಗೆ]

[Time : 10-30 A.M. to 1-45 P.M.

ಪರಮಾವಧಿ ಅಂಕಗಳು : 100]

[Max. Marks : 100

FOR OFFICE USE ONLY

PART - A

G. No.	Marks	G. No.	Marks	G. No.	Marks	G. No.	Marks	G. 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

G. No.	Marks	G. No.	Marks	G. No.	Marks	G. No.	Marks	G. 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. $10 \times 1 = 10$

1. The photograph of the dense material in the human body is to be taken. The characteristic of the rays used for this purpose is
- | | |
|----------------------|-------------------------------|
| (A) low frequency | (B) higher wavelength |
| (C) short wavelength | (D) less velocity than light. |

Ans : _____

(SPACE FOR ROUGH WORK)

2. Metal sheet *A* is exposed to one type of radiation and metal sheet *B* is exposed to another type of radiation. The velocity of the photoelectrons emitted by *A* is more than that of *B*. Then which one of the following possibilities is true ?
- (A) *A* is exposed to visible light and *B* to ultraviolet rays
 - (B) *A* is exposed to ultraviolet rays and *B* to visible light
 - (C) *A* is exposed to infrared rays and *B* to X-rays
 - (D) *A* is exposed to radio waves and *B* to gamma rays.

Ans : _____

3. When creamy curd is churned in a centrifuge the butter particles congregate at the centre of the rotating medium. This is because
- (A) butter particles experience greater centrifugal reaction
 - (B) butter particles experience less centrifugal reaction
 - (C) butter particles experience no centrifugal reaction
 - (D) butter particles and the particles of the medium experience the same centrifugal reaction.

Ans : _____

4. A traffic police has to detect the vehicle crossing the speed limit. Which of the following units is related to the characteristic of the wave used ?
- (A) hertz
 - (B) parsec
 - (C) angstrom
 - (D) newton.

Ans : _____

(SPACE FOR ROUGH WORK)

5. The remnant at the end of supernova of a star with mass 30 times that of the sun gets compressed to a small volume. Then it is a
- (A) White dwarf
 - (B) Pulsar
 - (C) Neutron star
 - (D) Black hole.

Ans : _____

6. The process of converting benzene to toluene is by the substitution of
- (A) CH_2 in place of C
 - (B) CH_2 in place of H
 - (C) CH_3 in place of C
 - (D) CH_3 in place of H.

Ans : _____

7. An automobile owner should prefer C_4H_{10} to C_8H_{18} as a fuel, because C_4H_{10} has a
- (A) low molecular mass and is more volatile
 - (B) high molecular mass and is more volatile
 - (C) high molecular mass and is less volatile
 - (D) low molecular mass and is less volatile.

Ans : _____

(SPACE FOR ROUGH WORK)

8. A supervisor in a factory forgets to add gypsum to cement while manufacturing cement. If the cement so produced is mixed with water, then it
- (A) sets slowly (B) sets rapidly
- (C) loses setting property (D) loses its colour slowly.

Ans : _____

9. Detergent mixed water should not be allowed to mix with river water, because, detergents are
- (A) lather producer with water (B) bio-degradable
- (C) non-biodegradable (D) insoluble in water.

Ans : _____

10. During saponification, the method of separating glycerol is
- (A) filtration (B) crystallisation
- (C) distillation (D) decantation.

Ans : _____

Fill in the blanks :

3 × 1 = 3

11. The spectrum obtained from candle flame is called

(SPACE FOR ROUGH WORK)

12. Speed of the star is estimated by using the effect stated by the scientist

13. The arrangement of solar cells in series is called a

14. Match the words in **List-A** with their meanings in **List-B**. Write the correct answer in the space provided : $4 \times 1 = 4$

List-A

- (a) Slag
- (b) Charge
- (c) Gangue
- (d) Ore

List-B

- (i) Ornamental ware
- (ii) Haematite
- (iii) Carbon monoxide and carbon dioxide
- (iv) Calcium silicate
- (v) Sand, clay and organic waste
- (vi) Calcium oxide and carbon dioxide
- (vii) Concentrated haematite, lime-stone and coke

Ans. : a) _____

b) _____

c) _____

d) _____

(SPACE FOR ROUGH WORK)

Answer the following :

6 × 1 = 6

15. Name the two products obtained along with water when hard water containing calcium bicarbonate is boiled.

16. Mention any two methods by which the induced e.m.f. can be increased in a dynamo.

17. A person wrongly purchases a centrifugal governor to transfer a liquid from a low pressure region. Name the device that the person should have purchased instead of centrifugal governor.

(SPACE FOR ROUGH WORK)

18. Why is a bent copper pipe used in a solar water heater ?

19. How is the use of good roads profitable to owners of the motor cycles ?

20. Why are normal butane and isobutane called isomers ?

(SPACE FOR ROUGH WORK)

Answer the following questions :

$9 \times 2 = 18$

21. Draw a neat diagram of the permutit tower used to soften hard water indicating the positions where hard water is sent in and soft water is drawn out.

(SPACE FOR ROUGH WORK)

22. Mention two properties and two uses of Laser.

23. Draw a neat diagram indicating the dispersion of composite light and recombination of colours.

(SPACE FOR ROUGH WORK)

24. Write one difference between solar flares and solar prominences.

25. Draw a neat schematic diagram of the structure of the sun to indicate clearly the solar core and solar zones.

(SPACE FOR ROUGH WORK)

26. a) Why does the size of copper cathode increase during the purification of copper by electrolysis ?

- b) Why does a goldsmith mix a small amount of copper to gold to make ornaments ?

27. Explain the extraction of amorphous silicon.

[illegible]

(SPACE FOR ROUGH WORK)

b) Nylon-6.

[illegible]

(SPACE FOR ROUGH WORK)

29. Mention two characteristics of aromatic hydrocarbons. Write the structures of the following :

a) Ethyne

b) Benzene.

(SPACE FOR ROUGH WORK)

Answer the following :

4 × 3 = 12

30. a) Explain the function of the following in a radio transmitter :

i) Mixer

ii) Oscillator.

b) What is meant by forward biasing of a diode ? How does it affect the resistance ?

(SPACE FOR ROUGH WORK)

31. State Kepler's laws of planetary motion.

[illegible]

(SPACE FOR ROUGH WORK)

32. Why does the mass number of the element remain the same during Beta decay ? The half-life of a radioactive element is 1600 years. What mass of 200 gms of that element is decayed in 4800 years ?

(SPACE FOR ROUGH WORK)

33. Draw a neat diagram of a D.C. motor.

(SPACE FOR ROUGH WORK)

Answer the following :

3 × 4 = 12

34. a) What is meant by 'efficiency of a heat engine' ?

b) What are the functions of the following in a petrol engine ?

i) Carburettor

ii) Spark plug.

c) Spark plug is not required in a diesel engine. Why ?

(SPACE FOR ROUGH WORK)

35. a) State the law of conservation of momentum.

b) What is the relationship between escape velocity and orbital velocity ?

c) Explain the working of a multistage rocket.

[illegible]

(SPACE FOR ROUGH WORK)

36. Draw a neat diagram of a 'Nuclear Power Plant'.

(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. A vertebrate having a diaphragm is

- (A) Seahorse
- (B) Ichthyophis
- (C) Pigeon
- (D) Bat.

Ans : _____

38. The part of an eye responsible for the colour of the eye is

- (A) Vitreous humour
- (B) Aqueous humour
- (C) Iris
- (D) Cornea.

Ans : _____

(SPACE FOR ROUGH WORK)

39. A person has watery fluid collected in some parts of the body with paralysed limbs. This is the symptom of the disease

(A) Simple goitre (B) Myxedema
(C) Dropsy (D) Diabetes.

Ans : _____

40. The possibility of developing Jaundice is high in the Hepatitis-B patient. This is because

(A) the bilirubin discharged from the liver is released to the blood
(B) W.B.C.s in blood turn to yellow colour
(C) platelets undergo chemical reaction causing Jaundice
(D) the quantity of serum increases in the blood.

Ans : _____

41. The scientist who developed the world's first clone of sheep is

(A) Edward Jenner
(B) Wilmut
(C) Louis Pasteur
(D) Robert Hooke.

Ans : _____

(SPACE FOR ROUGH WORK)

42. Match the following :

The **Column A** has the parts of phloem tissues and **Column B** has related functions.
Match the two and write the answer in the space provided : $4 \times 1 = 4$

Column A

- (a) Sieve plate
- (b) Companion cells
- (c) Phloem parenchyma
- (d) Phloem fibre

Column B

- (i) Control the transpiration
- (ii) Store food
- (iii) Protect the plant body from decaying
- (iv) Conduct the food
- (v) Provide tensile strength to the plant body
- (vi) Increase the size of the plant body
- (vii) Control the passage of food.

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

Answer the following in a sentence each :

$4 \times 1 = 4$

43. Why is the skin of frog always moist ?

(SPACE FOR ROUGH WORK)

44. What is the disorder caused due to less secretion of parathormone in human body ?

45. Assume that you are attacked by two robbers as you walk alone. At that moment you start running at a great speed. Which hormone produced in the body is responsible for getting that speed ?

46. Mention any one of the special characteristic features of tissue culture laboratory.

(SPACE FOR ROUGH WORK)

Answer the following questions in *two to three* sentences :

6 × 2 = 12

47. Mention any two salient features of reptiles. Mention any one major difference between reptiles and mammals.

48. A person is subjected to blood test. It is found that the glucose level in the blood has increased and is also urinating frequently.

a) From what disease is the person suffering ?

b) What hormone should be administered to control this disease ?

(SPACE FOR ROUGH WORK)

49. Name the four types of cells present in xylem tissue.

50. How does Hepatitis-B transmit from one to another ?

(SPACE FOR ROUGH WORK)

51. Generally yellow coloured cold drinks sold in shanties and fairs, should not be consumed.

a) Which disease will we be affected by this ?

b) Name the adulterant present in this cold drinks.

52. "In the previous year a farmer had grown groundnut in his field. This year he has thought of growing ragi crop in the same field and has decided to use lesser quantity of fertilizers."

a) What is the reason for the above decision taken ?

b) What crop can he cultivate in the same field next year ?

(SPACE FOR ROUGH WORK)

$$2 \times 3 = 6$$

- [illegible]

(SPACE FOR ROUGH WORK)

54. Draw a neat diagram of external features of fish and label the following parts :

- a) Pelvic fin
- b) Dorsal fin.

(SPACE FOR ROUGH WORK)

55. Draw a diagram of vertical section of human brain and label any four parts : 4

(SPACE FOR ROUGH WORK)

(SPACE FOR ROUGH WORK)