Roll No.										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**

Code No. : 83-E

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

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

(ಇಂಗ್ಲಿಷ್ ಭಾಷಾಂತರ / English Version)

ದಿನಾಂಕ : 05. 04. 2012]

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

ಪರಮಾವಧಿ ಅಂಕಗಳು : 100]

[Date : 05. 04. 2012

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

[Max. Marks : 100

FOR OFFICE USE ONLY
PART – A

ಪ್ರ. No.	Marks	ಪ್ರ. No.	Marks	ಪ್ರ. No.	Marks	ಪ್ರ. No.	Marks	ಪ್ರ. 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

ಪ್ರ. No.	Marks	ಪ್ರ. No.	Marks	ಪ್ರ. No.	Marks	ಪ್ರ. No.	Marks	ಪ್ರ. 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*	

[Turn over

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. It is a good practice to make children play for sometimes in the morning sunlight. By this practice body gains

   (A) Vitamin *B*   (B) Vitamin *C*

   (C) Vitamin *D*   (D) Vitamin *A*.

   Ans : _____

_____

(SPACE FOR ROUGH WORK)

2. The distance between moon and the earth can be determined by which of the following techniques ?

    (A) Laser ranging

    (B) Radiography

    (C) Sonar

    (D) Holography.

    Ans : _____

3. In which of the following strokes of the working of an internal combustion engine the inlet valve is closed and the outlet valve is open ?

    (A) Intake stroke

    (B) Compression stroke

    (C) Power stroke

    (D) Exhaust stroke.

    Ans : _____

4. One disadvantage of internal combustion engine is

    (A) it has low efficiency

    (B) there are chances of break-down of engine

    (C) it releases more carbon monoxide

    (D) it releases more carbon dioxide.

    Ans : _____

(SPACE FOR ROUGH WORK)

5. Under which of the following circumstances it is more suitable to use ultrasound scanner ?

    (A)   To find fractured bone

    (B)   To detect the metallic articles in a suitcase

    (C)   To study the working of heart

    (D)   To find the defects of teeth.

    Ans : _____

6. The number of hydrogen atoms that should be removed from butane to make it butene is

    (A)   2   (B)   4

    (C)   6   (D)   8.

    Ans : _____

7. Which of the following raw materials do you select to reduce the cost of manufacturing soap ?

    (A)   Crude oil

    (B)   Coconut oil

    (C)   Groundnut oil

    (D)   Non-edible vegetable oil.

    Ans : _____

(SPACE FOR ROUGH WORK)

8. Raw materials used in the manufacture of detergents are

   (A) vegetable oil, sodium hydroxide, long chain hydrocarbon

   (B) long chain hydrocarbon, sodium hydroxide, sulphuric acid

   (C) long chain hydrocarbon, vegetable oil, sulphuric acid

   (D) vegetable oil, sodium hydroxide, sulphuric acid.

   Ans : _____

9. Pre-matured cataract in human beings is caused by

   (A) radiowaves

   (B) ultrasonics

   (C) infrared rays

   (D) ultravoilet rays.

   Ans : _____

10. The bending of black absorber pipe in the form of coil in solar water heater

   (A) increases the efficiency

   (B) enables water to flow easily

   (C) retains water for long time in the pipe

   (D) increases area of absorption.

   Ans : _____

(SPACE FOR ROUGH WORK)

Answer the following : 6 × 1 = 6

11. Why does a runner lean towards the centre of the curves while running in a curved path ?

_____

_____

_____

_____

12. When a mixture of fine sand, sawdust and water are rotated in a centrifuge, sand moves away towards the edges. Why ?

_____

_____

_____

_____

13. Write any two uses of solar cell.

_____

_____

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(SPACE FOR ROUGH WORK)

14. Why do the sun-spots appear dark ?

_____

_____

_____

15. How is fuel saved if pressure cooker is used in cooking ?

_____

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16. Though by permutit process we can make hard water soft, the water may not be potable. Why ?

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(SPACE FOR ROUGH WORK)

17. Match the compounds in **List**-**A** with their molecular formulae in **List**-**B**. Write the correct answer in the space provided : $4 \times 1 = 4$

List-A	**List-B**
(a) Propane	(i) C_2H_6
(b) Acetylene	(ii) C_3H_6
(c) Ethane	(iii) C_4H_6
(d) Butyne	(iv) C_3H_8
	(v) C_6H_{12}
	(vi) C_6H_6
	(vii) C_2H_2

Ans. : a) _____

b) _____

c) _____

d) _____

Fill in the blanks : $3 \times 1 = 3$

18. Valency of dopant of base region of *n-p-n* transistor is ....

_____

_____

19. The principle used in tracking of artificial satellite is ....

_____

_____

20. The process of slow cooling of glass is called ....

_____

_____

(SPACE FOR ROUGH WORK)

Answer the following questions : 9 × 2 = 18

21. Write common parts present in motor and dynamo.

_____

_____

_____

22. Draw a neat diagram of DC motor.

(SPACE FOR ROUGH WORK)

23.   Write any two experimental facts regarding photoelectric effect.

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24.   Draw a block diagram of radio receiver.

(SPACE FOR ROUGH WORK)

25. Draw a neat diagram of external combustion engine.

(SPACE FOR ROUGH WORK)

26. What is the product formed when heated aluminium powder is sprinkled in a gas jar containing chlorine ? Write balanced chemical equation of the reaction.

_____

_____

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27. a) How is the substance used in grinding tools prepared from silicon and coke ?

_____

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(SPACE FOR ROUGH WORK)

b) How do you obtain hydrogen gas from silicon and water ?

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28. Write two differences between thermosetting plastics and thermoplastics.

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(SPACE FOR ROUGH WORK)

29.   What is hard water ? Name two salts which cause temporary hardness in water.

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(SPACE FOR ROUGH WORK)

Answer the following : 4 × 3 = 12

30. Write Kepler's three laws of planetary motion.

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(SPACE FOR ROUGH WORK)

31.   a)   The age of which of the following materials can be found by using radio-carbon ?

Quartz, Wood, Copper.

_____

_____

_____

_____

_____

b)   Half-life period of radio phosphorus is 3 minutes. After its preparation it decays and in 12 minutes 2 grams of mass is remained. What was its initial mass when it was prepared ?

(SPACE FOR ROUGH WORK)

32. What is spectroscope ? Write functions of collimator and telescope of a spectroscope.

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(SPACE FOR ROUGH WORK)

33.   Draw a neat diagram of nuclear power plant and label the following parts :

i)   Moderator   ii)   Heat exchanger.

(SPACE FOR ROUGH WORK)

Answer the following :   3 × 4 = 12

34.   a)   What is orbital velocity ?

_____

_____

_____

_____

_____

     b)   Write the equation for the orbital velocity of satellite which is placed at a height of *h* metre from the earth. Write the meanings of symbols used.

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

(SPACE FOR ROUGH WORK)

35. In the life cycle of stars explain the following stages :

     i)   Proto star   ii)   Steady star.

(SPACE FOR ROUGH WORK)

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

    three 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. $5 \times 1 = 5$

37. Which one of the following contains xanthophyll in excess ?

(A)   Polysiphonia

(B)   Ectocarpus

(C)   Spirogyra

(D)   Ulothrix.

Ans : _____

38. Individual can be identified using

(A)   DNA fingerprint technology

(B)   Recombinant DNA technology

(C)   Genetic engineering

(D)   Cloning technique.

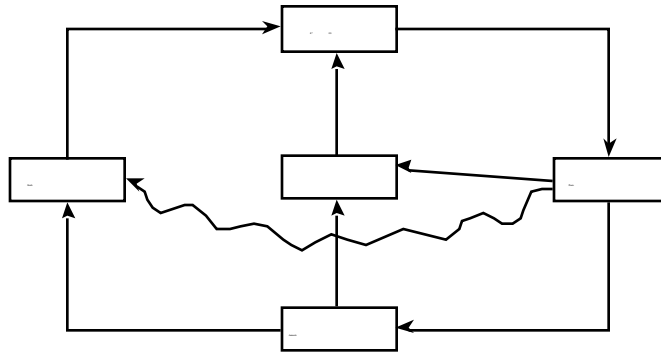*Ans :* _____

(SPACE FOR ROUGH WORK)

39. A person is advised vitrectomy surgery. The gland which is not functioning properly is

    (A)   thyroid   (B)   islet of Langerhans

    (C)   gonads   (D)   adrenal.

    Ans : _____

40. Fill in the box selecting the appropriate life process :

    (A)   Respiration   (B)   Nutrition

    (C)   Growth   (D)   Reproduction.

    Ans : _____

41. A person stammers. Part of the brain affected is

    (A)   thallamus   (B)   hypothallamus

    (C)   cerebellum   (D)   cerebrum.

    Ans : _____

(SPACE FOR ROUGH WORK)

42. Names of Vertebrates are given in **Part 'A'**. Match their characteristic features which are given in **Part 'B'** :   4 × 1 = 4

	A		*B*
(a)	Snake	(i)	four chambered heart, viviparous, homeothermic animal
(b)	Sea horse	(ii)	two chambered heart, viviparous, homeothermic animal
(c)	Rabbit	(iii)	four chambered heart, oviparous, homeothermic animal
(d)	Crow	(iv)	two chambered heart, oviparous, poikilothermic animal
		(v)	three chambered heart, viviparous, poikilothermic animal
		(vi)	four chambered heart, oviparous, poikilothermic animal
		(vii)	three chambered heart, oviparous, poikilothermic animal.

Ans. :   (a) _____

            (b) _____

            (c) _____

            (d) _____

Answer the following in a sentence each :   4 × 1 = 4

43. What is biotechnology ?

_____

_____

_____

_____

(SPACE FOR ROUGH WORK)

44. We need to avoid eating coloured ice candy sold on road sides. Why ?

_____

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45. A baby born deaf may also be dumb. Why ?

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46. A diabetic patient who is losing weight drastically may feel more chill than a non-diabetic person. Why ?

_____

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(SPACE FOR ROUGH WORK)

Answer the following questions in *two* to *three* sentences : 6 × 2 = 12

47. Mention any two functions of the secretion of lacrimal glands.

_____

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48. List out the common adulterants that may be present in the following :

a) Honey

_____

_____

b) Turmeric powder

_____

_____

c) Coffee powder

_____

_____

d) Pepper.

_____

_____

(SPACE FOR ROUGH WORK)

49. Thyroid gland of a 40 year old person is underactive. List out any four symptoms of the disorder that the person might be suffering from.

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50. What are the main differences between the two types of biogeochemical cycles ?

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(SPACE FOR ROUGH WORK)

51. What was the need for vertebrates to evolve from oviparity to viviparity ?

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52. A doctor advises a person to shift his residence from the midst of the city to city outskirts, where lots of lichen growth is found. What may be the reason behind this advice ?

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(SPACE FOR ROUGH WORK)

Answer the following questions :   2 × 3 = 6

53.   a)   Epidermis is not a complex permanent tissue. Why ?

_____

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_____

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_____

b)   A farmer discovers at a later stage that the land he had purchased had lots of insectivorous plants. Now he decides not to cultivate any crop in that land. Why ?

_____

_____

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_____

(SPACE FOR ROUGH WORK)

54. Draw a diagram showing the structure of HIV and label any two parts :

_____

(SPACE FOR ROUGH WORK)

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

   a) Cerebrum   b) Cerebellum

   c) Medulla oblongata   d) Pons.

(SPACE FOR ROUGH WORK)

(SPACE FOR ROUGH WORK)