MITTAL CLASSES

IIT-JEE | MEDICAL | FOUNDATION

Paper Code:07F-2611–SP–A

SAMPLE PAPER

Class – VII **Time: 2 Hour** **M. Marks: 300**

General Instructions:

1. Answers have to be marked on the OMR sheet.

2. The question paper consists of 75 multiple choice questions (single correct option) divided into five sections.
   Section – A contains 15 questions (Q1 to Q15) of Physics.
   Section – B contains 15 questions (Q16 to Q30) of Chemistry.
   Section – C contains 15 questions (Q31 to Q45) of Mathematics.
   Section – D contains 15 questions (Q46 to Q60) of Mental Ability.
   Section – E contains 15 questions (Q61 to Q75) of Biology.

3. Each question carries **+4** marks for correct answer and **–1** mark for wrong answer.

4. The Question Paper contains blank spaces for your rough work. No additional sheets will be provided for rough work.

5. Blank papers, clip boards, log tables, slide rule, calculator, cellular phones, pagers and electronic devices, in any form, are not allowed.

6. Write your Name, Father Name, Class, MSAT Roll No. and Date in the space provided at the bottom of this sheet.

NAME: _____

FATHER NAME: _____

CLASS: _____

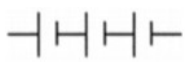
MSAT ROLL NO: _____

DATE: _____

PHYSICS

1. An electric circuit is:
   (A) An open path for current
   (B) A closed path for current
   (C) A path for heat flow
   (D) A path for sound

2. Match the following:

Column - I		Column - II	
(i)	Electric cell	(p)	
(ii)	Battery	(q)	
(iii)	LED	(r)	
(iv)	Wire	(s)	

   (A) (i)-r, (ii)-p, (iii)-s, (iv)-q
   (B) (i)-p, (ii)-q, (iii)-r, (iv)-s
   (C) (i)-s, (ii)-r, (iii)-q, (iv)-p
   (D) (i)-q, (ii)-s, (iii)-p, (iv)-r

3. A student correctly connects a circuit using a cell, a lamp, and a switch. The switch is in the 'OFF' position. What is a consequence of this?
   (A) The circuit is closed, and current flows.
   (B) The circuit is open, and the lamp is glowing.
   (C) The circuit has a gap, and no current flows.
   (D) The cell's positive terminal is connected to the lamp's positive terminal.

4. Which of the following describes the correct direction of conventional electric current in circuit?
   (A) From the negative terminal to the positive terminal of the cell.
   (B) From the positive terminal to the negative terminal of the cell.
   (C) From both terminals simultaneously.
   (D) It flows only within the cell.

5. Match the following:

	Column - A		Column - B
(i)	Wet wood	(P)	Current
(ii)	Dry cell	(Q)	Rechargeable
(iii)	Secondary cell	(R)	Conductor
(iv)	Ampere is the SI unit of	(S)	LED
(v)	Lead acid accumulator	(T)	Primary cell

   (A) (i)–(Q), (ii)–(R), (iii)–(S), (iv)–(T), (v)–(P)
   (B) (i)–(S), (ii)–(R), (iii)–(T), (iv)–(P), (v)–(Q)
   (C) (i)–(Q), (ii)–(P), (iii)–(S), (iv)–(T), (v)–(R)
   (D) (i)–(R), (ii)–(T), (iii)–(Q), (iv)–(P), (v)–(S)

6. Heat is closely related with:
(A) Liquid (B) Pressure
(C) Temperature (D) Force

7. Conduction is possible:
(A) When the bodies are apart from each other.
(B) When the bodies have the same temperature and are in thermal contact.
(C) When they have different temperatures maintaining distance between them.
(D) Bodies should be in contact and should have different temperatures.

8. Match the following:

	Column - A		**Column - B**
(i)	Land breeze blows during	(P)	Summer
(ii)	Sea breeze blows during	(Q)	Winter
(iii)	Dark coloured clothes are preferred during	(R)	Day
(iv)	Light coloured clothes are preferred during	(S)	Night

(A) (i)–(S), (ii)–(R), (iii)–(Q), (iv)–(P)
(B) (i)–(R), (ii)–(S), (iii)–(P), (iv)–(Q)
(C) (i)–(Q), (ii)–(P), (iii)–(S), (iv)–(R)
(D) (i)–(R), (ii)–(P), (iii)–(S), (iv)–(Q)

9. Air conditioners are placed high up the walls so that:
(A) They create less noise.
(B) Cold air from them comes down and cools the room while hot air rises up.
(C) They are out of the way.
(D) All of the above.

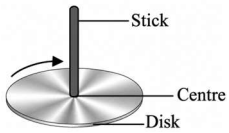
10. Heat is transferred by convection in:
(A) Solids (B) Conductors
(C) vacuum (D) liquids

11. Long ago, people developed boats on the pattern of:
(A) Streamlined shape of birds.
(B) Streamlined shape of fish.
(C) Streamlined shape of submarine.
(D) Elongated shape of python.

12. A clock is started at noon. By 20 minutes past 5 PM on the same day, the angle through which the hour hand has turned is:
(A) 150° (B) 160°
(C) 145° (D) 155°

13. If we denote speed by S, distance by D and time by T, then the relationship between these quantities is:
(A) $S = D \times T$ (B) $T = \frac{S}{D}$
(C) $S = \frac{1}{T} \times D$ (D) $S = \frac{T}{D}$

14. A circular disk with a stick, is moving about its axis through the centre as shown in the figure. Which of the following type of motion is described by the stick?



(A) Rotatory motion
(B) Periodic motion
(C) Rectilinear motion
(D) Circular motion

15. How will you convert the speed given in km/h to m/s?
(A) By multiplying with 5/16
(B) By multiplying with 6/5
(C) By multiplying with 18/5
(D) By multiplying with 5/18

CHEMISTRY

16. Which metal is commonly used to make food packaging materials as it is cheaper and its thin sheets can be folded easily into any shape?
(A) Aluminium (B) Copper
(C) Iron (D) Gold

17. Which metal is found in liquid state at room temperature?
(A) Aluminium (B) Mercury
(C) Sodium (D) Zinc

18. Which of the following are not properties of non-metals?
(A) Soft
(B) Not sonorous
(C) Good conductors of heat
(D) Dull in appearance

19. Which of the following cannot be used to extract a metal from its ore?
(A) Electrolytic reduction
(B) Carbon reduction
(C) Reaction with oxygen
(D) Reaction with more electropositive metal

20. A metal X is placed below Al and above Pb. The extraction of metal is done by reacting carbon with its oxide. Metal oxide is used to join cracks of machine parts and rail lines by reacting it with Al. The metal is:
(A) Copper (B) Iron
(C) Zinc (D) Magnesium

21. Take the aluminium wire and clamp this wire on the stand and fix the pin to the free end of the wire using wax. Heat the wire with a burner where it is clamped. After that we will find that:
(A) Metal will melt on heating.
(B) Wax does not melt.
(C) Aluminium is a good conductor of heat.
(D) Aluminium oxide will be formed.

22. Which of the following are physical properties of non-metals?
(A) Brittle

(B) Poor conductors of heat
(C) Dull appearance
(D) All of these

23. Why are bells made from metals?
(A) Metals are shiny.
(B) Metals produce ringing sound.
(C) Metals are heavy.
(D) Metals melt easily.

24. Titanium is used in the aerospace industry because it is:
(A) Brittle and dull
(B) Lightweight and strong
(C) A poor conductor
(D) Easily corroded

25. Why is graphite used in pencils?
(A) It is shiny.
(B) It conducts electricity.
(C) It is malleable.
(D) It is soft and leaves a mark on paper.

26. Match the following:

Column - A		Column - B	
(i)	Malleability	(P)	Produces ringing sound when struck
(ii)	Ductility	(Q)	Allows flow of electric current
(iii)	Sonority	(R)	Ability to be drawn into wires
(iv)	Electrical conductivity	(S)	Ability to be hammered into thin sheets

(A) (i)–(P), (ii)–(Q), (iii)–(R), (iv)–(S)
(B) (i)–(Q), (ii)–(P), (iii)–(S), (iv)–(R)
(C) (i)–(R), (ii)–(S), (iii)–(P), (iv)–(Q)
(D) (i)–(S), (ii)–(R), (iii)–(P), (iv)–(Q)

27. What colour does red rose extract turn in a basic solution?
(A) Red (B) Green
(C) Blue (D) Yellow

28. Which of the following is an acid-base indicator?
(A) Vinegar (B) Lime water
(C) Turmeric (D) Baking soda

29. A few substances are listed in the box. Classify them as acidic, basic or neutral compounds and select the correct option.

(i) Lime water
(ii) Soda water
(iii) Washing soda
(iv) Vinegar
(v) Sugar solution
(vi) Sodium chloride solution

	Acidic	Basic	Neutral
(A)	II, IV	I, III	V, VI
(B)	I, III	II, IV	V, VI
(C)	II, IV	I, VI	III, V
(D)	III, V	I, VI	II, IV

30. In which of the following reactions, salt and water are produced?

(I) $Mg + HCl \rightarrow$

(II) $HCl + Ca(OH)_2 \rightarrow$

(III) $H_2SO_4 + NaOH \rightarrow$

(IV) $Na + HCl \rightarrow$

(A) I and III only
(B) II and III only
(C) I and IV only
(D) I, III and IV only

MATHEMATICS

31. What is the product of 1111 × 1111?
(A) 1234321 (B) 1233321
(C) 1345678 (D) 1233211

32. 5 million is equal to how many lakhs?
(A) 500 lakh (B) 5 lakh
(C) 50 lakh (D) 25 lakh

33. 8 × 8 – 8 = ?
(A) 0 (B) 56
(C) 1 (D) 64

34. What is the value of
(8 + 2) × 5 + (5 + 2) × 8 = ?
(A) 430 (B) 106
(C) 160 (D) 350

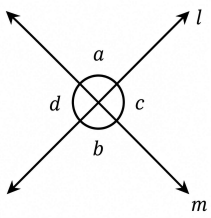
35. Which of the following is the largest?
(A) $6\frac{5}{10}$ (B) $5\frac{6}{10}$
(C) $5\frac{9}{10}$ (D) $6\frac{6}{10}$

36. 0.07 + 0.008 is equal to:
(A) 0.15 (B) 0.015
(C) 0.078 (D) 0.105

37. The subtraction of 5 times of y from x is:
(A) 5x − y (B) y − 5x
(C) x − 5y (D) 5y − x

38. In a quiz, Meera's score in one round is 5p − 2q, where p is the points for a correct answer and q is the penalty. If p = 6 and q = 1, what is her score?
(A) 29 (B) 24
(C) 28 (D) 32

39. In the given figure, lines ℓ and m intersect each other at a point. Which of the following is false?



(A) ∠a = ∠b (B) ∠d = ∠c
(C) ∠a + ∠d = 180° (D) ∠a = ∠d

40. Two adjacent angles form a linear pair. If one angle is 45°, the other is:
(A) 135° (B) 145°
(C) 90° (D) 180°

41. The parity of the expression 3n + 2, when n = 2, is:
(A) Even
(B) Odd
(C) Sometimes even, sometimes odd
(D) None of the above

42. The two angles of a triangle are 60° and 40°. Then, the value of the third angle is:
(A) 40° (B) 60°
(C) 80° (D) 50°

43. Which of the following sets of side lengths can form a triangle?
(A) 2 cm, 3 cm, 6 cm
(B) 4 cm, 5 cm, 7 cm
(C) 1 cm, 1 cm, 3 cm
(D) 5 cm, 10 cm, 16 cm

44. The value of $\frac{3}{4}$ of 27 is
(A) 36 (B) $\frac{81}{4}$
(C) $\frac{1}{36}$ (D) $\frac{4}{81}$

45. A ribbon of length $5\frac{1}{3}$ m is cut into small pieces, each of length $\frac{2}{3}$ m. The number of pieces will be
(A) 5 (B) 6
(C) 7 (D) 8

MENTAL ABILITY

46. I went 15 m to the North, then turned West and covered 10 m, then turned South, and covered, 5 m then turned East and covered 10 m. In which direction am I now from my house?
(A) North (B) South
(C) East (D) West

47. Shyam went 70 metre in the East before turning to his right. He went 10 metre before turning to his right again and went 10 metre from this point. From here he went 90 mete to the North. How far was he from the starting point?
(A) 80 metre (B) 100 metre
(C) 140 metre (D) 260 metre

48. Arun said, "this girl is the wife of the grandson of my mother." Who is arun to the girl?
(A) Father
(B) Grandfather.
(C) Husband
(D) Father-in-law

49. Pointing to a man Asha said, "His brother's father is the only son of my grand father". How Asha is related to the man.
(A) Mother (B) Aunt
(C) Sister (D) Daughter

50. Choose the alternative which is closely resembles the mirror image of the given combination.

MALAYALAM

(1) MALAYALAM (2) MAJAYAJAM
(3) MALAYALAM (4) MALAYALAM

(A) 1 (B) 2
(C) 3 (D) 4

51. Choose the alternative which is closely resembles the mirror image of the given combination.

EFFECTIVE

(1) ƎVITƆƎ⅁⅁Ǝ (2) EVITCEFFE
(3) Ǝ⅁⅁ƎƆTIVƎ (4) ƎVITƆƎF⅁Ǝ

(A) 1 (B) 2
(C) 3 (D) 4

52. If A stands for +, B stands for –, C stands for ×, then what is the value of (10C4) A (4C4) B 6
(A) 60 (B) 50
(C) 56 (D) 20

53. If A stands for ÷, B stands for ×, C stands for +, and D stands for –, then what is the value of 18B12A4C5D6 is ____
(A) 36 (B) 59
(C) 53 (D) 70

54. 2, 3, 5, 7, ?
(A) 9 (B) 10
(C) 11 (D) 14

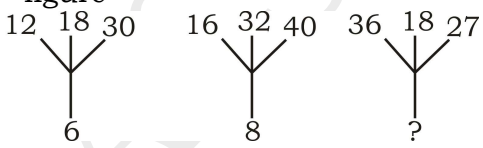
55. 210, 120, ? , 24, 6, 0
(A) 64 (B) 48
(C) 35 (D) 60

56. Find the missing term in the given figure

17	11	19
12	13	16
25	4	?

(A) 36 (B) 9
(C) 25 (D) 64

57. Find the missing term in the given figure



(A) 18 (B) 12
(C) 9 (D) 6

58. X, U, S, P, N, K, I, ?
(A) J (B) K
(C) M (D) F

59. X, A, D, G, J, ?
(A) N (B) O
(C) M (D) P

60. If 'P' means '+' , 'R' means 'x' , S' means '–' T' means '÷' then what is the value of
5 R 9 P 7 S 9 T 3 P 6 = ?
(A) 54 (B) 128
(C) 59 (D) 55

BIOLOGY

61. At what age does adolescence typically begin?
(A) 2–5 years (B) 6–10 years
(C) 10–13 years (D) 20–25 years

62. What marks the beginning of puberty in girls?
(A) Deep voice
(B) Growth of facial hair
(C) Menstruation
(D) Muscle development

63. What is the function of hormones during adolescence?
(A) Prevent illness
(B) Control emotions only
(C) Regulate growth and changes in the body
(D) Improve memory

64. Which of the following is an emotional change during adolescence?
(A) Growth of hair
(B) Feeling more independent
(C) Taller height
(D) Voice change

65. Which gland controls the release of puberty hormones?
(A) Thyroid gland
(B) Pituitary gland
(C) Adrenal gland
(D) Salivary gland

66. Which hormone is primarily responsible for triggering the onset of puberty in humans?
(A) Cortisol
(B) Growth hormone
(C) Gonadotropin-releasing hormone (GnRH)
(D) Insulin

67. Menarche typically occurs at which stage of adolescence?
(A) Early adolescence (10–13 years)
(B) Middle adolescence (14–16 years)
(C) Late adolescence (17–19 years)
(D) Post-adolescence (20+ years)

68. Starch is_____
(A) carbohydrate
(B) protein
(C) fat
(D) vitamin

69. Saliva help in the digestion of
(A) proteins (B) fats
(C) starch (D) vitamins

70. Where does digestion start in humans?
(A) Stomach
(B) Mouth
(C) Small intestine
(D) Large intestine

71. What is the role of saliva in the mouth?
(A) To soften food and start breaking down starch
(B) To kill bacteria
(C) To absorb nutrients
(D) To produce acid

72. What do teeth do during digestion?
(A) Digest food chemically
(B) Break food into smaller pieces
(C) Absorb food
(D) Mix food with enzymes

73. The tube that carries food from the mouth to the stomach is called:
(A) Windpipe (B) Esophagus
(C) Intestine (D) Trachea

74. What is the movement called that pushes food down the food pipe?
(A) Peristalsis (B) Respiration
(C) Circulation (D) Digestion

75. Which organ churns food and produces digestive juices?
(A) Mouth
(B) Stomach
(C) Liver
(D) Large intestine

ANSWER KEY

PHYSICS		CHEMISTRY		MATHEMATICS		MENTAL ABILITY		BIOLOGY	
Q. NO.	Ans.	Q. NO.	Ans.	Q. NO.	Ans.	Q. NO.	Ans.	Q. NO.	Ans.
1.	B	16.	A	31.	A	46.	A	61.	C
2.	A	17.	B	32.	C	47.	B	62.	C
3.	C	18.	C	33.	B	48.	D	63.	C
4.	B	19.	C	34.	B	49.	C	64.	B
5.	D	20.	B	35.	D	50.	B	65.	B
6.	C	21.	C	36.	C	51.	A	66.	C
7.	D	22.	D	37.	C	52.	C	67.	A
8.	A	23.	B	38.	C	53.	C	68.	A
9.	B	24.	B	39.	D	54.	C	69.	C
10.	D	25.	D	40.	A	55.	B	70.	B
11.	B	26.	D	41.	A	56.	B	71.	A
12.	B	27.	B	42.	C	57.	C	72.	B
13.	C	28.	C	43.	B	58.	D	73.	B
14.	A	29.	A	44.	B	59.	C	74.	A
15.	D	30.	B	45.	D	60.	D	75.	B