

FIITJEE COMMON TEST

PHASE – I

Mental Ability Test (MAT)

QP CODE: XXXXX.X

Time: 90 Minutes

Maximum Marks: 90

Please read the instructions carefully.

INSTRUCTIONS

A: General:

1. Immediately fill in the particulars on this page of the Test Booklet with Blue/Black Ball point pen.
2. Use **Blue/Black Ball Point Pen only** for writing particulars on **Side-1** and **Side-2** of the Answer Sheet. **Use of pencil is strictly prohibited.**
3. Darken the appropriate bubbles with **Blue/Black Ball Point Pen** only.
4. Blank papers, clipboards, log tables, slide rules, calculators, cellular phones, pagers and electronic gadgets in any form are not allowed.
5. The answer sheet, a machine-gradable Objective Response Sheet (ORS) is provided separately.
6. Do not Tamper/mutilate the **ORS** or this booklet.
7. No additional sheets will be provided for rough work
8. On completion of this test, the candidate must hand over the Answer Sheet to the Invigilator on duty in the Room/Hall. **However, the candidates are allowed to take away this Test Booklet with them.**

B: Questions paper format and Marking Scheme :

1. The question paper consists of 90 questions.
2. For each question you will be **awarded 1 mark** if you darken the bubble corresponding to the correct answer and zero mark if no bubble is darkened. No Negative Mark will be awarded.

Enrollment No. : Batch : _____

Name : _____

Candidate's Signature _____ Invigilator's Signature: _____

MAT

Direction (1-6) : Find out the missing term marked with '?' in the following question.

1. -4, 7, 29, 62, '?'
 (A) 95 (B) 106 (C) 62 (D) 102

2. Find out the missing term marked with '?' in the following question.
 B, C, ?, H, L, ?, W
 (A) E, Q (B) D, N (C) E, M (D) D, Q

3. Find out the missing term marked with '?' in the following question.
 hlp, txb, fjn, rvz, ?
 (A) aei (B) cgk (C) dhl (D) dfh

4. Find out the missing term marked with '?' in the following question.
 b_ab_a_ca_c_bc_
 (A) abcabc (B) abbcca (C) ccbbaa (D) aabbcc

5. Find out the missing term marked with '?' in the following question.
 H4J, ?, F9N, E13P, D18R
 (A) 15 K (B) G6L (C) M06 (D) T7Z

6. Find the wrong term in the given series.
 2, 4, 16, 32, 128, 250, 1024
 (A) 16 (B) 28 (C) 250 (D) 1024

7. Find the wrong term in the given series.
 169, 144, 120, 100, 81
 (A) 81 (B) 100 (C) 120 (D) 144

8. Find the wrong term in the given series.
 ABZ, BCY, CDX, EFW, EFV
 (A) BCY (B) CDX (C) EFV (D) EFW

Direction (9-21): In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'.

9. In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'
 20, 10, 2, -4, -8, ?
 (A) -10 (B) -11 (C) -12 (D) -14

10. In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'
 1, 2, 6, ?, 88, 445
 (A) 72 (B) 45 (C) 32 (D) 21

11. In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'
 1, 1, 5, 4, 11, 9, 19, 16, 29, ?, ?
 (A) 25, 41 (B) 42, 25 (C) 19, 39 (D) 39, 19

12. In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'
- $\frac{3}{7}, \frac{8}{17}, \frac{18}{37}, ?, \frac{78}{157}$
- (A) $\frac{39}{67}$ (B) $\frac{54}{75}$ (C) $\frac{38}{77}$ (D) $\frac{37}{102}$
13. In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'
- X, S, ?, L, J
- (A) K (B) M (C) O (D) H
14. In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'
- AZBYCX, DWEVFU, GTHSiR, JQKPLO, ?
- (A) MMNNLO (B) MNMNLO (C) NMNMOL (D) MNNMOL
15. In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'
- baa ? ba ? bb ? a ? b ? ab ? aab
- (A) baabab (B) ababab (C) bababa (D) aaabbb
16. In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'
- CE, FI, JL, MP, QS, ?
- (A) TV (B) TW (C) TU (D) UV
17. In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'
- 3 N 4, 6 M 10, 9 L 5, 12 K 11, 15 J 6, ?
- (A) 18I12 (B) 18I10 (C) 18I8 (D) 18I6
18. In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'
- Z10H, X15K, V20N, T25Q, ?
- (A) S30T (B) R30T (C) T30S (D) T30R
19. In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'
- R-216, Q-125, P-64, ?, N-8, M-1
- (A) O-40 (B) H-48 (C) O-27 (D) P-55
20. In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'
- 3, A, 5, B, ?, C, 17, D, 33, ?
- (A) 10, F (B) 10, E (C) 9, F (D) 9, E
21. In the question given below, there is a series with one or more terms/letters as missing each marked with '?'. Choose the correct alternative to replace the mark(s) '?'
- HISTOGRAM, ISTOGR, STOGR, ?

- (A) STO (B) TOG (C) OGR (D) SOR

Direction (22-31): In the following question, there is a series. One term of the series is wrong. Find out the wrong term from four alternatives given below the series.

22. In the following question, there is a series. One term of the series is wrong. Find out the wrong term from four alternatives given below the series.
7, 10, 15, 21, 31, 42, 55
(A) 10 (B) 21 (C) 31 (D) 42
23. In the following question, there is a series. One term of the series is wrong. Find out the wrong term from four alternatives given below the series.
0, 6, 24, 60, 120, 216
(A) 0 (B) 120 (C) 216 (D) 24
24. In the following question, there is a series. One term of the series is wrong. Find out the wrong term from four alternatives given below the series.
m, n,p, s, v, b, h
(A) h (B) v (C) s (D) n
25. In the following question, there is a series. One term of the series is wrong. Find out the wrong term from four alternatives given below the series.
1216, 608, 302, 152, 76
(A) 302 (B) 152 (C) 1216 (D) 76
26. In the following question, there is a series. One term of the series is wrong. Find out the wrong term from four alternatives given below the series.
2, 5, 12, 20, 32, 42, 56
(A) 5 (B) 12 (C) 42 (D) 56
27. In the following question, there is a series. One term of the series is wrong. Find out the wrong term from four alternatives given below the series.
Y2, W4, U6, S8, Q10, O9
(A) Y2 (B) U6 (C) Q10 (D) O9
28. In the following question, there is a series. One term of the series is wrong. Find out the wrong term from four alternatives given below the series.
4, 10, 22, 31, 40, 49
(A) 10 (B) 22 (C) 40 (D) 49
29. In the following question, there is a series. One term of the series is wrong. Find out the wrong term from four alternatives given below the series.
 $\frac{a}{0}, \frac{d}{3}, \frac{h}{7}, \frac{m}{12}, \frac{r}{17}$
(A) $d/3$ (B) $h/7$ (C) $m/12$ (D) $r/17$
30. In the following question, there is a series. One term of the series is wrong. Find out the wrong term from four alternatives given below the series.
 $\frac{3}{\sqrt{3}}, \frac{5}{3}, \frac{7}{3\sqrt{3}}, 1, \frac{11}{6\sqrt{3}}$
(A) $\frac{5}{3}$ (B) $\frac{7}{3\sqrt{3}}$ (C) 1 (D) $\frac{11}{6\sqrt{3}}$

31. In the following question, there is a series. One term of the series is wrong. Find out the wrong term from four alternatives given below the series.
 JJJ, LLL, NNN, OOO, RRR
 (A) RRR (B) OOO (C) LLL (D) JJJ
32. Which of the options will come next in the series?
 JAZ, LEX, NIV, POT, ?
 (A) QUR (B) RUS (C) RUR (D) RSR

Directions (Q.No.- 33): Find the missing term in the following questions of series completion.

33. AZ, GT, MN, ?, YB
 (A) KF (B) RX
 (C) SH (D) TS
34. Choose the correct option so that a series can be established 17, 19, 23, 29, __, 37
 (A) 31 (B) 33 (C) 35 (D) 36
35. Read the following information carefully and answer the questions that follow:
 'A+B' means 'A is the sister of B',
 'A-B' means 'A is the father of B',
 'A ÷ B' means 'A is the brother of B' and
 'A × B' means 'A is the mother of B'.
 What does $P - Q \times R \div S + T$ mean?
 (A) T is the maternal grandfather of P (B) P is the maternal grandfather of T
 (C) T is the uncle of P (D) P is the uncle of T
36. Pointing out to a lady, Rajan said, "She is the daughter of the woman who is the mother of the husband of my mother." Who is the lady to Rajan?
 (A) Aunt (B) Grand-daughter (C) Daughter (D) Sister
37. Pointing to a photograph, Archana says, "She is the sister-in-law of my mother's husband. How is the person in the photograph related to Archana?
 (A) Cousin (B) Maternal uncle (C) Niece (D) Sister-in-law
38. Pointing to a man, a woman says, "he is the father of the only grandson of my father-in-law." How is the man related to the woman?
 (A) Husband (B) Brother (C) Grand-Father (D) Data inadequate
39. A man says, "Priya is the wife of grandson of my mother". How Riya related to the man?
 (A) Daughter (B) Sister (C) Daughter-in-law (D) Sister-in-law
40. Pointing towards Gauri, Riya says, "She is the daughter of only son of my grandfather". How is Gauri related to Riya?
 (A) Aunt (B) Niece (C) Mother (D) Sister
41. Pointing to a man, a woman says, "He is the father of borther-in-law of my daughter-in-law". How is the woman related to the man?
 (A) Sister-in-law (B) Sister (C) Wife (D) Date inadequate
42. Pointing to Sahil, Danish said, "He is the son of my brother-in-law's father's only daughter". The relationship of Sahil-Danish is _____
 (A) Son-father (B) Father-son
 (C) Grandson-grandfather (D) Grandfather-grandson

43. Pointing towards a woman in a photograph, Sunita says, "Her father is the only son of my mother –law Latika". How is a man who is the brother of the woman in the photograph, related to Latika?
 (A) Son (B) Father (C) Grandson (D) Grandfather
44. There are two boys Amit and Raj. Amit is the son of Raj's mother's father. Then Amit is the _____ of Raj.
 (A) Maternal cousin (B) Maternal nephew (C) Maternal uncle (D) Brother-in-law
45. A's mother is the sister of B and daughter of C. D is the daughter of B and sister of E. How is C related to E?
 (A) Maternal grandfather
 (B) Maternal grandmother
 (C) Maternal grandfather or Maternal grandmother
 (D) Data inadequate
46. Ajay is the son-in-law of Harry and husband of Jai's sister. If Ritesh is the brother of jai, then how is Ritesh related to Harry?
 (A) Grandson (B) Brother-in-law (C) Brother (D) Son
47. P and Q are sister. S and T are brothers. Q's brother is S's son. Who is T to P?
 (A) Uncle (B) Brother (C) Father (D) Son
48. A is brother of B and C is sister of D. B is son of C. How is C related to A?
 (A) Father (B) Mother (C) Niece (D) Nephew
49. Atul is the son of Udit. Bharat is married to Garmia. Garima is Udit's daughter. Bharat is the son of Deepak. How is Atul related to Bharat?
 (A) Father-in-law (B) Brother-in-law (C) Brother (D) Data is not good enough
50. Tina is Saurabh's only sister. Sanchit's son is the son-in-law of Saurabh's father, Sanchit has only one grandson Jai. How is Tina related to Jai?
 (A) Wife (B) Mother-in-law (C) Mother (D) Daughter
51. Ankur's mother is the mother-in-law of Priya's mother. If Ankur has no brother, how is Priya related to Ankur?
 (A) Daughter (B) Sister (C) Daughter-in-law (D) Data is not good enough
52. J_1 is J_2 's sister. J_3 is J_2 's mother. J_4 is J_3 's father. How is J_1 related to J_4 ?
 (A) Granddaughter (B) Daughter (C) Grandmother (D) Sister
53. If 'A+B' means 'A is the father of B' and 'A – B' means 'A is the mother of B' then for P-Q+S, which of the following relation is true?
 (A) P is grandfather of S (B) S is grand-daughter of P
 (C) S is grandchild of P (D) S is grandson of P
54. If 'P+Q' means 'P is the daughter of Q'; 'P-Q' means 'P is the husband of Q' and 'P×Q' means 'P is the brother of Q'. Which of the following is true for $A - B + C \times D$?
 (A) A is brother-in-law of C (B) C is father-in-law of A
 (C) B is aunt of D (D) B is female and D is male
55. If $A \times B$ means 'A is the sister of B'; 'A+B' means 'A is the father of B'; 'A-B' means 'A is the brother of B'; 'A÷B' means 'A is the mother of B' and 'A = B' means 'A is the son of B'. What does $P + Q \div R - S \times T = U$ mean if U is male?

- (A) P is the mother-in law of U
(B) U is the son of P
(C) P is the father-in law of U
(D) P and U are brothers

Directions (Q.No.-56 – 58): Find the missing term in the following questions of series completion.

56. Find the missing term in the following questions of series completion.
5, 9, 13, 17, ?, ?, 29, 33, ?
(A) 21, 25, 37
(B) 21, 25, 26
(C) 21, 26, 37
(D) 22, 25, 37
57. Find the missing term in the following questions of series completion.
25, 20, 15, 10, ?
(A) 50
(B) 75
(C) 100
(D) 5
58. Find the missing term in the following questions of series completion.
1, 3, 6, 10, 15, ?, 28, 36
(A) 24
(B) 22
(C) 21
(D) 64
59. Prashant Jain has three children – Gauri, Vaibhav and Arun. Arun married Kanika, the eldest daughter of Mr. and Mrs. Mittal. The Mittal's married their youngest daughter to the eldest son of Mr. and Mrs. Sharma and they had two children named Akash and Shreya. The Mittal's have two more children, Shan and Rinki, both elder to Vanishika. Sammer and Ajay are sons of Arun. What is the surname of Rashmi?
(A) Sharma
(B) Mittal
(C) Jain
(D) none of these
60. Pointing towards a photograph, Mohit said, 'His sister is the mother of Vinay, the son of my brother'. How Mohit is related to Vinay
(A) Brother
(B) Uncle
(C) Nephew
(D) Brother-in-law
61. If 'P+Q' means 'P is the brother of Q'; 'P × Q' means 'P is the father of Q' and 'P – Q' means 'P is the sister of Q', which of the following relations shows that I is the niece of K?
(A) $K + Y + Z - I$
(B) $K + Y \times I - Z$
(C) $Z - I \times Y + K$
(D) $K \times Y + I - Z$
62. P is the mother of Q and daughter of R. S is the daughter of Q and sister of T. How is P related to T?
(A) Paternal grandmother
(B) Maternal grandmother
(C) Data inadequate
(D) None of these
63. If 'A' stands for '+', 'B' stands for '÷', 'C' stands for '×' and 'D' stands for '–', then which of following will be the value of the expression $4 A 6 B 3 C 5 D 4$?
(A) 8
(B) 12
(C) 20
(D) 10
64. If '+' means '÷', '÷' means '–', '–' means '×' and '×' means '+', then $110 + 11 - 10 \div 22 \times 18 = ?$
(A) 46
(B) 96
(C) 106
(D) 116
65. P means 'add to', Q means 'subtract from', M means 'multiply by' and N means 'divide by', then $1 P 3 2 Q 6 N 1 M 0 P 8 = ?$
(A) 0
(B) 1
(C) 21
(D) 41
66. It is given that 'φ' denotes 'divided by', '@' denote 'plus', '#' denotes 'minus' and '*' denotes 'multiplied by', then what is the value of the expression given below?
 $14 \# 99 \phi 33 @ 11 * 5$

- (A) 56 (B) 46 (C) 66 (D) 36

67. If 'a' stands for '×', 'b' stands for '÷', 'c' stands for '-' and 'd' stands for '+', then what will be the value of the expression (10 a 3) b (14 c 4) d (19 d 9)?
 (A) 31 (B) 29 (C) 23 (D) 11

68. If '+' is '×', '-' is '+', '×' is '÷' and '÷' is '-', then simplify the following expression:

$$9 - 3 + 4 \div 16 \times 2$$

- (A) 12 (B) 13 (C) 11 (D) 7

Directions (Q.No.-69 – 72): Find the missing term in the following questions of series completion.

69. Find the missing term in the following question of series completion.

7, 13, 25, 43, 67, ?

- (A) 99 (B) 100 (C) 97 (D) 98

70. Find the missing term in the following question of series completion.

3 10 32 100 ?

- (A) 460 (B) 308 (C) 345 (D) None of these

71. Find the missing term in the following question of series completion.

1, 9, 25, 49, ?

- (A) 81 (B) 64
 (C) 71 (D) 100

72. Find the missing term in the following question of series completion.

0, 3, 8, 15, ?, 35

- (A) 24 (B) 25
 (C) 26 (D) 20

73. If '×' means '+', '+' means '÷', '-' means '×', and '÷' means '-', then $8 \times 7 - 8 + 40 \div 2 = ?$

- (A) 1 (B) $7\frac{2}{5}$ (C) $8\frac{3}{5}$ (D) 44

74. If a means '+', 'd' means '÷', 'm' means '×', 's' means '-', 'e' means '=', 'g' means '>', 'l' means '<', then which one out of the following four is correct?

- (A) 30 d 6 a 2 g 4 m 3 (B) 30 s 6 d 2 d 4 e 3
 (C) 30 s 6 s 2 l 4 m 3 (D) 30 a 6 d 2 g 4 m 3

75. If the signs '+' and '-' are interchanged and the numbers 3 and 5 are also interchanged, then which one out of the following four alternatives is correct?

- (A) $3 - 6 \div 2 + 5 = 1$ (B) $5 + 6 \div 2 - 3 = 1$ (C) $3 + 6 \div 2 - 5 = 1$ (D) $5 - 6 \div 2 + 3 = 1$

76. If the sign '×' and '÷' as well as the numbers 10 and 20 are interchanged, then select the correct one alternative out of the following four.

- (A) $4 \div 20 - 10 \times 5 = 36$ (B) $10 + 20 \times 4 \div 5 = 6$
 (C) $4 + 5 \div 20 \times 10 = 6$ (D) $10 \times 20 + 5 - 6 = 8$

77. If the signs '×' and '-' and numbers 6 and 3 are interchanged, then which of the following equations is correct?

- (A) $6 - 3 \times 8 = 21$ (B) $3 - 6 \times 7 = 9$ (C) $6 - 3 \times 4 = 21$ (D) $3 - 6 \times 8 = 10$

78. $16 + 4 \div 2 - 21 \times 7 = 21$

The above equation is incorrect. Which one out of the following interchanges would correct it?

- (A) \div and \times (B) $+$ and \times (C) $-$ and \div (D) $-$ and $+$
79. The interchanges in the digits 9 and 4, and in the signs ' \div ' and ' \times ' would make true which one of the following expressions?
 (A) $33 \times 9 \div 80 = 14$ (B) $94 \times 7 \div 97 = 329$ (C) $40 \times 10 \div 9 = 49$ (D) $30 \div 4 \times 19 = 49$
80. Introducing Shaan, Mahesh said, 'Her brother's father is the only son of my grandfather'. How is Mahesh related to Shaan?
 (A) Daughter (B) Brother (C) Mother (D) Niece
81. Pointing to a woman in a photograph, a man says, 'she is the mother-in-law of the husband of the only granddaughter of my own mother in law.' How is the woman related to the man?
 (A) Daughter in law (B) Sister in law (C) Wife (D) Sister in law or Wife
82. Looking at a portrait of a man, Harendra said, 'His mother is the wife of my father's son. Brothers and sisters I have none.' At whose portrait was Harendra looking?
 (A) His nephew (B) His cousin (C) His uncle (D) His son
83. Pointing to Sunny, Suman said, 'his mother's brother is the father of my son Vikash'. How is Sunny related to Suman?
 (A) Niece (B) Nephew
 (C) Sister in law (D) None of these
84. How is Sushma's daughter-in-law's son related to Sushma's husband?
 (A) Great grand son in law (B) Grandson
 (C) Cannot be determined (D) None of these
85. If Twinkle says – Riya's father Ravindra is the only son of my father –in-law Mahendra, then how is Priyanka, who is the sister of Riya related to Mahendra?
 (A) Daughter (B) Daughter in law
 (C) Wife (D) None of these
86. My father's sister's son's father is related to me as
 (A) cousin (B) uncle (C) aunt (D) cannot be determined
87. My father's father in law' son's only sister is related to me as
 (A) grandmother (B) sister in law (C) aunt (D) none of these
88. How is my mother's mother in law's only son related to me?
 (A) uncle (B) father (C) cannot be determined (D) none of these
89. How is my father's brother's only sibling related to me?
 (A) cousin (B) uncle (C) cannot be determined (D) father
90. A boy goes to see a movie and finds a man who is his relative. The man is the husband of the sister of his mother. How is the man related to the boy?
 (A) nephew (B) uncle (C) brother (D) none of these

FIITJEE COMMON TEST

PHASE – I

Mental Ability Test (MAT)

QP CODE: XXXXX.X

ANSWER KEY

1. B	2. A	3. C	4. C
5. B	6. C	7. C	8. D
9. A	10. D	11. A	12. C
13. C	14. D	15. A	16. B
17. A	18. B	19. C	20. D
21. B	22. B	23. C	24. B
25. A	26. A	27. D	28. A
29. D	30. D	31. B	32. C
33. C	34. A	35. B	36. A
37. B	38. A	39. C	40. D
41. C	42. A	43. C	44. C
45. D	46. D	47. A	48. B
49. B	50. C	51. A	52. A
53. C	54. B	55. C	56. A
57. D	58. C	59. A	60. B
61. B	62. C	63. D	64. B
65. D	66. C	67. A	68. B
69. C	70. B	71. A	72. A
73. B	74. D	75. D	76. A
77. D	78. A	79. B	80. B
81. D	82. D	83. B	84. B
85. D	86. B	87. D	88. B
89. D	90. B		