11 The Competition in

Advanced Mathematics Skills

Advanced Maths Test I & II

MODEL PAPERS

Class : VII

Eduranet
Intellectual Olympiad Foundation
(Promoted by Eduranet Educational Society (Regd. 309/09))

Hyderabad | India

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SYLLABUS

I) Algebra

1. Number System
2. Exponents and Powers
3. Simple Equations
4. Algebraic Expression
5. Comparing Quantities

II) Geometry

1. Perimeter and Area
2. Data - Handling
3. Lines, Angles,Triangles& Properties of Triangle
4. Congruence of Triangles
5. Visualising Solid Shapes
6. Symmetry
7. Practical Geometry

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ADVANCED MATHS TEST-I

Code: 1171 **PRELIMS**

Max. Marks : 75 **Duration : 75 Mins.**

General Instructions :

1. Please find the Answer Sheets (OMR) with in the envelop given to you.
2. Mention your Test Code, Student ID, Name, Class, Section and School Name on the OMR Sheet as per Question Paper and Hall Ticket.
3. This question paper contains 75 Questions, duration is 75 minutes.
4. Do rough work in the empty sheet provided along with this question paper.
5. Answer questions in OMR sheet only.
6. Don't write or tick anything on the question paper.
7. Use only Black or Blue Ball Point Pen or Dark Perncil to answer the question in OMR sheet.
8. Indicate the correct answer by darkening one of the 4 or 5 responses provided.
9. Submit only OMR sheet to the invigilator

1. The LCM of two numbers is x and their HCF is y. The product of two number is

a) $\frac{x}{y}$ b) $\frac{y}{x}$ c) x + y d) xy

2. The number having a recurring decimal representation 1.414141..... is

a) real but irrational b) not real

c) rational d) neither rational nor real

3. There are 264 girls and 408 boys in a school. These children are to be divided into groups of equal numbers of boys

and of girls. The maximum number of boys or girls in each groups will be

a) 11 b) 17

c) 24 d) 36

4. Simplified value of $2\frac{1}{2}+3\frac{5}{7}\times\frac{3}{13}-\frac{1}{2}\div 4$

a) $\frac{188}{56}$ b) $-\frac{181}{56}$ c) $-3\frac{13}{56}$ d) $3\frac{13}{56}$

5. One integer is greater than the other by +4. If one number is –16 then the other is

a) +12 b) 0 c) –1 d) –12

6. The value of $3\frac{1}{12}-\left[1\frac{3}{4}+\left\{2\frac{1}{2}-\left(1\frac{1}{2}-\frac{1}{3}\right)\right\}\right]$ **is**

a) $\frac{1}{2}$ b) 2 c) 1 d) 0

7. The product of a fractional number and its multiplicative inverse is

a) 0 b) 1

c) number itself d) none

8. What should be added to $\frac{11}{17}$ **to make it** $\frac{15}{17}$ **?**

a) $\frac{26}{17}$ b) 4 c) $\frac{4}{17}$ d) $\frac{4}{34}$

9. 4+ $\frac{3}{100}$ = ____

a) 43 b) 4.3

c) 4.03 d) 0.43

10. The equivalent fraction of $\frac{2}{3}$ having the denominator 18 is ____

a) $\frac{2}{18}$ b) $\frac{18}{3}$ c) $\frac{12}{18}$ d) $\frac{18}{27}$

11. How many one-fourths need to be added to $2\frac{1}{4}$ to make 4 ?

a) 3 b) 4 c) 5 d) 7

12. Consider the statements given below.

i) A set of numbers can have more than one mode

ii) Median is always equal to mean

iii) While drawing a bar graph, scale is not of much importance

iv) In a given data, arranged in ascending or descending order the median gives us the middle observation.

v) The data 6,4,3,8,9,12,13,9 has mean 9.

Which of the above statements is/are correct ?

a) only (iv) and (v)

b) only (i) and (iv)

c) only (ii), (iii) and (v)

d) All the statements are correct

13. Following are the percentages of marks of 10 students of a class:

50,60,70,72,74,75,80,88,75,100

Frequency of students in the class (60 - 68) will be :

a) 5 b) 1 c) 6 d) 3

14. The mode of the following data:

Size	1	3	5	7	9
Frequency	6	9	12	3	15

is.

a) 9 b) 7 c) 5 d) 3

15. The ratio between two numbers is 3 : 5, If each number is increased by 4, the ratio becomes 2 : 3, Find the numbers.

a) 12,20 b) 18,30 c) 24,40 d) 15,25

16. The ratio of number of boys to girls in a class is 1 : 25, If 36 more girls join, the ratio becomes 1 : 28. The number of boys in the class is

a) 24 b) 32 c)12 d) 48

17. The present age of a man is 3 times that of his son. Six years ago, the age of the man was four times that of his son. Find the ratio of their ages 6 years later.

a) 4 : 3 b) 3 : 4 c) 2 : 5 d) 5 : 2

18. If $\frac{1}{x}+\frac{3}{x}=\frac{11}{3}$, then x = _____ .

a) 11/3 b) 2/3 c) 12/11 d)3/11

19. By making ***'l'*** as the subject in $T=2\pi\sqrt{\frac{l}{g}}$, we obtain ***'l'*** =

a) $\frac{gT^2}{4\pi^2}$ b) $\frac{gT^2}{2\pi}$

c) $\frac{4\pi^2}{gT^2}$ d) $\frac{2\pi}{gT^2}$

20. A line segment RS is symbolically written as

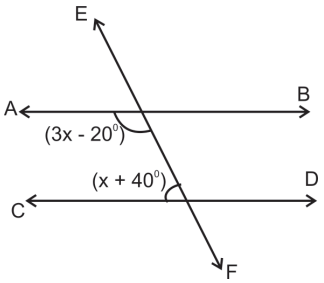
a) RS b) $\overrightarrow{RS}$ c) $\overline{RS}$ d) $\overline{RS}$

21. One pair of opposite angles of a parallelogram is ($2x - 50^0$, $x + 20^0$). Then the parallelogram necessarily is

a) a rhombus b) a square

c) a rectangle d) None of these

22. In the following figure $\overline{AB} \parallel \overline{CD}$. Find the value of x.



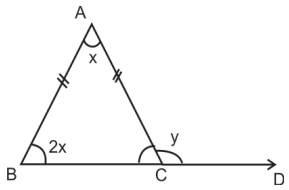
a) 50^0 b) 45^0 c) 60^0 d) 40^0

23. A line AB is parallel to the line CD. this is symbolically written as

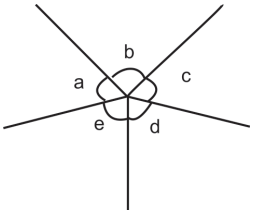
a) $\overrightarrow{AB} \neq \overrightarrow{CD}$ b) $\overrightarrow{AB} = \overrightarrow{CD}$

c) $\overrightarrow{AB} \perp \overrightarrow{CD}$ d) $\overrightarrow{AB} \parallel \overrightarrow{CD}$

24. In the following figure . AB = AC and BC is extended to D, then find the vlaue of x+y.



a) 120^0 b) 160^0 c) 40^0 d) 144^0

25. 

In the above figure, the angles a,b,c,d and e are consecutive integers in degrees. a = _____.

a) 70^0 b) 74^0

c) Either (a) or (2) d) Neither (1) nor (2)

26. The $\triangle$ le formed by AB = 3 cm, BC = 4 cm, AC = 8 cm is

a) a scalene $\triangle$ le b) an isosceles $\triangle$ le

c) an equilateral $\triangle$ le d) no triangle is formed

27. If in a $\triangle ABC, \angle A = 60^0$ and AB = AC Then $\triangle ABC$ is

a) an isosceles $\triangle$ le

b) a right angled $\triangle$ le

c) an isosceles right angled $\triangle$ le

d) an equilateral $\triangle$ le

28. If a , b and c are the sides of a $\triangle$ le, then

a) a – b > c b) c > a +b c) c = a + b d) b < c + a

29. In a $\triangle ABC$, If $\angle A = \angle B + \angle C$ then $\angle A =$ ------.

a) 60^0 b) 45^0 c) 90^0 d) none

30. Which of the following may lie outside or on the triangle?

(i) Circumcentre (ii) Centroid

(iii) Orthocentre (iv) Incentre

a) (i), (ii) & (iii) b) (i) and (ii)

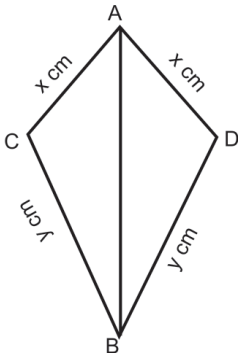
c) (i) and (iii) d) All the above

31. The bisector of an angle of a triangle bisects the opposite sides in the ratio of

a) Opposite sides b) 2 : 1

c) 3 :1 d) none

32. By which congruency property, the two triangles connected by the following figure are congruent.



a) SAS property b) SSS property

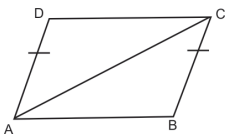
c) RHS property d) ASA property

33. If two $\triangle$les have their corresponding angles equal, then they are always congruent.

a) True b) False

c) Cannot be determined d) none

34. In the given fig. if AD = BC and $AD \parallel BC$, Then

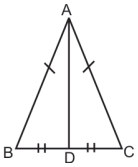


a) AB = AD b) AB = DC

c) BC = CD d) none

35. In the following fig.if AB = AC and BD = DC then

$\angle ADC =$



a) 60^0 b) 120^0 c) 90^0 d) none

36. In an office the working hours are 10.30 AM to 5.30 PM and in between 30 minutes are spent on lunch. Find the ratio of office hours to the time spent for lunch.

a) 7 : 30 b) 1 :14 c) 14 :1 d) 30 : 7

37. In a school the total number of students are 3200 out of which 1800 are boys. Remaining are girls. Ratio of girls to boys is

a) 1400 : 1800 b) 9 : 7

c) 7 : 9 d) 1 : 3

38. If x : y = 1 : 1, then $\frac{3x+4y}{5x+6y}$ **= _____.**

a) 7 / 11 b) 17/11 c) 17/23 d) 4/5

39. If a : b = 4 : 5 and b: c = 2 : 3, then a : c = _____.

a) 4 : 3 b) 8 : 15 c) 8 : 9 d) 5 : 3

40. If $\frac{5}{7}$ **of 49 + 20% of 130 = x + 49 then x =____.**

a) 10 b) 12 c) 16 d) 18

41. If $\frac{25p+14q}{5p+7q}=\frac{8}{3}$ **, then find p : q.**

a) 3: 5 b) 2 : 3

c) 2 : 5 d) 5 : 4

42. A train of length 200 m crosses a plat form of length 100 m in 12 seconds. Find the speed of the train (in m/s)

a) 40 b) 25 c) 60 d) 18

43. Out of the rational numbers $\frac{-5}{11}, \frac{-5}{12}, \frac{-5}{17}$, which is greater?

a) $\frac{-5}{11}$ b) $\frac{5}{-12}$ c) $\frac{-5}{17}$ d) None

44. A, B and C shared a total of Rs. 6024. Share of A is one - third of the total money and share of B is half of the total money. Find the share of C.

a) Rs. 1004 b) Rs. 104

c) Rs. 208 d) Rs. 2008

45. The HCF and the LCM of two numbers are 24 and 1008. If one of the numbers is 168, then find the other number.

a) 336 b) 252 c) 148 d) 144

46. $\frac{-143}{21}$ **= .....**

a) $-6+\frac{17}{12}$ b) $6+\left(\frac{-17}{21}\right)$

c) $(-6)+\left(\frac{-17}{21}\right)$ d) none

47. In a school, the number of students in each section is equal to the number of sections. If the total number of students is 625, then find the number of sections.

a) 10 b) 20 c) 15 d) 25

48. $\sqrt{6.05}\times\sqrt{8.45}=$

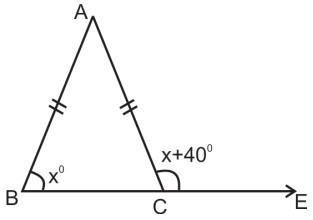
a) 6.95 b) 7.35 c) 7.55 d) 7.15

49. Which of the following is true ?

a) $\sqrt{a}+\sqrt{b}=\sqrt{a+b}$ b) $\sqrt{a}.\sqrt{b}=\sqrt{ab}$

c) $\sqrt{a}-\sqrt{b}=\sqrt{a-b}$ d) None of these

50. In the following figure if AB = AC then find $\angle x$.



a) 80^0 b) 70^0 c) 60^0 d) 110^0

51. If the angles of a $\triangle$ le are in the ratio 1 : 2 : 7 then the $\triangle$ le is

a) acute angled b) obtuse angled

c) right angled d) right angled isosceles

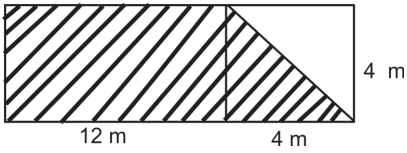
52. The dimension of a shop are 12 ft × 8 ft × 5 ft. The area of four walls is ____.

a) 200 ft^2 b) 400 ft^2 c) 500 ft^2 d) 800 ft^2

53. Find the cost of fencing a circular garden of radius 21 m at Rs. 10 per metre.

a) Rs. 1320 b) Rs. 132 c) Rs. 1200 d) Rs. 660

54. Find the area of the shaded part in the figure given below.



a) 48 m^2 b) 56 m^2

c) 64 m^2 d) 52 m^2

55. The angle of a sector of radius 14 cm, is 90^0. The area of the sector is ____.

a) 144 cm^2 b) 154 cm^2

c) 162 cm^2 d) 196 cm^2

56. The radius of a circular card board is 20 cm. A strip of width 4 cm is removed all along its border. The percentage of the area of the strip removed is _____.

a) 50% b) 36% c) 40% d) 25%

57. The angle of a sector of a circle is 90^0. The ratio of the area of the sector and that of the circle is _____.

a) 4 : 1 b) 3 : 1 c) 1 : 4 d) 3 : 1

58. Find the area of a right isosceles triangle whose hypotenuse is $16\sqrt{2}$ cm.

a) 125 cm^2 b) 158 cm^2

c) 128 cm^2 d) None of these

59. The volume of a cube is 729 cm^3, then the length of its edge is _____.

a) 9 m b) 7 m c) 5 m d) 3 m

60. Ages of two friends are in the ratio 2 :1. If the sum of their ages is 51 then their ages are

a) 34 yrs, 20 yrs b)34 yrs, 17 yrs

c) 20 yrs, 10 yrs d) 30 yrs, 15 yrs

61. In $\frac{2}{3}p - 2\frac{1}{2} = 3\frac{1}{2}$, the value of p is

a) – 9 b) + 6 c) +9 d) 0

62. The expanded form of (x + y) (x – y) is a ____

a) monomial b) binomial

c) trinomial d) None of these

63. Degree of $5x^2y + 3xy$ is _____

a) 3 b) 2 c) 4 d) 5

64. The product of $\left(\frac{4p}{5}-3\right)$ and $\left(\frac{5p}{8}-6\right)$ is

a) $\frac{p^2}{2}+\frac{267}{40}p-18$ b) $\frac{p^2}{2}-\frac{267}{40}p-18$

c) $\frac{p^2}{2}+\frac{267}{40}p+18$ d) $\frac{p^2}{2}-\frac{267}{40}p+18$

65. If x = –2 and y = –5 then find $x^2 + y^2 + 3x y$ _____

a) 58 b) 50 c) 59 d) 60

66. If $x^y = y^x, then\left(\frac{x}{y}\right)^{\frac{x}{y}}$ is equal to

a) $x^{\frac{x}{y}}$ b) $x^{\frac{x}{y}-1}$ c) $x^{\frac{y}{x}}$ d) $x^{\frac{y}{x}-1}$

67. If $2y+\frac{1}{2y}=l$ and $2y-\frac{1}{2y}=m$, then $l^2 - m^2$ =_____.

a) 2 b) 4 c) 6 d) 0

68. If $x+\frac{1}{x}=2$ then $x^{100}-\frac{1}{x^{100}}=$ _____.

a) 0 b) 1 c) 2 d) 2^{100}

69. The value of $\left[\left(\frac{1}{4}\right)^2-\left(\frac{1}{4}\right)^3\right]\times 2^6$

a) 1 b) 2 c) 3 d) 4

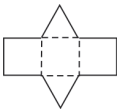
70. If $x^2 - y^2 = 12xy$, then $x^2/y^2 + y^2/x^2$=_____.

a) 146 b) 144 c) 142 d) 140

71. Which of the following pairs of shapes, when joined together (by placing them edge to edge) can form a rectangle ?

a)  b)  c)  d) 

72. Which figure could be made if the piece of cardboard shown below is folded along the dotted lines ?

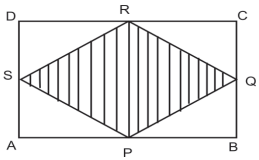


a)  b)  c)  d) 

73. The sum of the present ages of Ram and Shyam is 75 years. Ten years ago, Ram's age was 4 times the age of Shyam. Find the difference between their present ages (in years).

a) 22 b) 23 c) 33 d) 30

74. Find the area ofthe shaded region of the following figure.



ABCD is a rectangle having length 30 cm and breadth 25 cm. P,Q,R,S are midpoints of AB, BC, CD and AD respectively

a) 375 m^2 b) 375 cm^2 c) 475 m^2 d) None

75. There are two numbers, the difference between them is equal to twice the smaller number. The sum of the two numbers is 68. Find the product of the two numbers.

a) 867 b) 965 c) 814 d) 986

KEY TO MODEL PAPER - I

1. d	2. a	3. c	4. d	5. d	6. d
7. b	8. c	9. c	10. c	11. d	12. b
13. b	14. a	15. a	16. c	17. d	18. c
19. a	20. d	21. c	22. d	23. d	24. d
25. c	26. d	27. d	28. d	29. c	30. c
31. a	32. b	33. b	34. b	35. c	36. c
37. c	38. a	39. b	40. b	41. c	42. b
43. a	44. a	45. d	46. c	47. d	48. d
49. b	50. b	51. b	52. a	53. a	54. b
55. b	56. b	57. c	58. c	59. a	60. b
61. c	62. b	63. a	64. d	65. c	66. b
67. b	68. a	69. c	70. a	71. a	72. b
73. c	74. a	75. a			

ADVANCED MATHS TEST-II

Code : 1172

FINALS

Max. Marks : 60 **Duration : 60 Mins.**

General Instructions :

1. Please find the separate Answer Sheets along with the question paper.
2. Mention your Test Code, Student ID, Name, Class, Section, Contact no. and School Name on the Answer Sheet as per Question Paper and Hall Ticket.
3. This question paper contains VI sections, duration is 60 minutes.
4. Please read the instructions carefully before attempting the question.
5. Answer questions in Answer Sheet only.
6. Don't write or tick anything on the question paper.
7. Use only Black or Blue Ball Point Pen to answer the question in Answer Sheet.
8. Submit only answer sheet(s) to the invigilator.

SECTION - I **10 × 1 = 10**

DIRECTIONS: (1 - 10) – Complete the following statements with an appropriate word/term to be written in the answer sheet.

1. $\sqrt{2\frac{14}{25}} - \sqrt{1\frac{7}{9}}$ _____

2. If $\frac{4}{7}$ of 49% of x = 21, then the value of x is_____.

3. If $\left(\frac{a}{b}\right)^{\frac{5}{14}} + \left(\frac{b}{a}\right)^{\frac{5}{14}} = 6,$ then the value of $\left(\frac{a}{b}\right)^{\frac{5}{7}} + \left(\frac{b}{a}\right)^{\frac{5}{7}}$ is _____

4. If $\frac{18-2m}{5}+\frac{4m+3}{7} \geq \frac{m}{5}+\frac{8}{7}$, then $m \leq$ _____ .

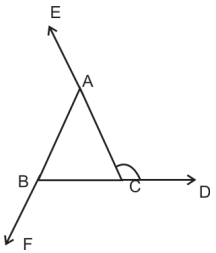
5. Ascending order of $\frac{2}{7}, \frac{5}{-8}, 0, \frac{1}{3}$ is _____

6. The multiplicative inverse of $a^{\frac{p}{q}}$ is _____.

7. Sum of $7x^2 - 2x + 5$, $-2x^2 - 11x + 3$, $-2x^2 - 2x - 4$ is _____.

8. A student has to secure 40% marks to pass. He got 40 marks and failed by 40 marks. The maximum number of marks is _____

9. In the following figure the three sides of the triangle ABC are produced in order to generate three exterior angles then $\angle ACD = \angle B +$ _____.



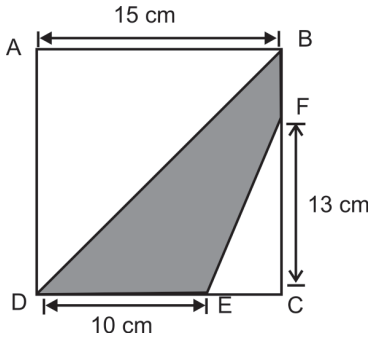
10. The minimum angle through which it has to be rotated to look exactly the same is called_____.

SECTION - II **10 × 1 = 10**

DIRECTIONS : (11 - 20) – Read the following statements and write true or false with reasons or solutions; in the answer sheet.

11. Simple form of $\frac{27^2 \times (-m)^5 n^2}{18^3 \times m^3 n}$ is $\frac{-m^2}{8}$.

12. In the figure below, ABCD is a square, The area of shaded part is 80 cm^2



13. Sum of 12x and 7y is 127xy.

14. $\text{S.P.} = \text{C.P}\left(\frac{100-\text{Loss}\%}{100}\right) \Rightarrow \text{C.P} = \frac{100\times\text{S.P}}{(100-\text{Loss}\%)}$

15. The degree of in a pie chart component 72^0. The component value 24 then the total value of all the components of the data is 120.

16. The value of 1 – [1–1– (1–1+7x) is 1 + x.

17. If $y+\frac{1}{y}=-2$ then $y^{50}-\frac{1}{y^{50}}=0$

18. $(5x + 4y)(4y–5x) = 25x^2–16y^2$

19. Area is the length of the boundary of a closed figure.

20. Cost of 12 balls is Rs. 48, the cost of 15 ball is Rs. 60.

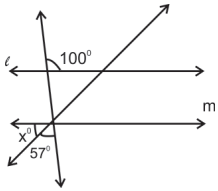
Section - III

10 × 1 = 10

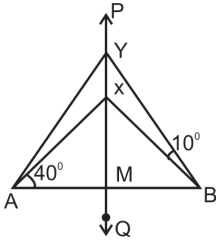
DIRECTIONS: (21 - 30) Each question contains statements given in two columns which have to be matched. Match the statements (21,22,...30) in column I with statements (a,b,... q) in column II .

Arrange the matched statements in order and write in the answer sheet.

Column I	Column II
21) If $a^{\frac{p}{q}} = \sqrt[q]{k}$, then k =	a) 43^0
22) The solution set of $\frac{y}{6}+\frac{4}{5}<2$ is	b) 77 m^2
23) If the radius of the circle is 14 cm then the area of the sector of angle 45^0 is ____	c) $a^{\frac{p}{q}}$
24) In the following figure 'x' value is ____	d) 40^0



25)



e) $y > \frac{36}{5}$

In the above figure $\overleftrightarrow{PQ}$ is the perpendicular bisector of $\overline{AB}$ If $\angle XAB = 40^0$ $\angle XBY = 10^0$, Then $\angle AYX =$ _____ .

26) The total surface area of a cube of edge $\sqrt{10}$ cm is _____cm^2.

27) $9 \times \left(-\frac{1}{3}\right) \times (-3) \times \left(-\frac{1}{9}\right) =$ _____

28) In a formula, a variable which is expressedin terms of other variables

29) $\frac{x^3 - y^3}{x - y}$

30) $\frac{\left[\left(x^a\right)^b\right]^{2c}}{x^{abc}} =$

f) $x^2 + xy + y^2$

g) x^{abc}

h) 75.6

i) subject

j) 60

k) 44^0

l) x + y

m) $y < \frac{36}{5}$

n) – 1

o) 77 cm^2

p) a^p

q) 1

SECTION - IV

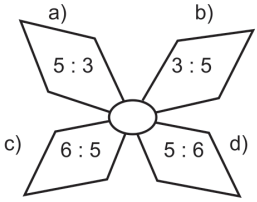
10 × 1 = 10

Directions: (31 - 40) – Identify the correct answer from the given options and write in the answer sheet.

31. $\sqrt{225} + \sqrt[3]{\frac{1}{64}}$ **–––––––.**

a) $15\frac{1}{4}$ b) $15\frac{1}{8}$ c) $15\frac{1}{2}$ d) $15\frac{1}{16}$

32. Choose the correct ratio form of 60% from the below given picture.



33. Write the formula for simple interest in terms of principal, rate of interest and time and which one is not equivalent to original formula.

a) $P = \frac{S.I \times 100}{RT}$ b) $R = \frac{S.I \times 100}{PT}$

c) $T = \frac{S.I \times 100}{PR}$ d) $\frac{S.I}{100} = PRT$

34. If a > 1, which of the following is an ascending order of accompanying terms ?

I. $\sqrt[3]{\sqrt[4]{a^3}}$ II. $\sqrt[3]{\sqrt[5]{a^4}}$ III. $\sqrt{\sqrt[3]{a}}$ IV. $\sqrt{\sqrt[5]{a^3}}$

a) I,II,III,IV b) I, II, IV,III

c) IV, I, III, II d) III, I, II, IV

35. Mohan engaged a labourer for 30 days on the condition that he will be paid at the rate of Rs.50 per day for the days he works. and he will be fined Rs. 10 per day for the days he is absent. If he receives Rs.1200 after 30 days. Number of days for which he was absent is

a) 6 b) 5 c) 8 d) 4

36. Which one is the correct order to describe the below given activities?

(i) Think of a number (ii) add 47

(iii) double it (iv) take away 75

v) triple it

vi) Subtract the number you thought of

vii) add 18

viii) divide by 5

ix) take away the number you thought of:

a) x, 2x + 94, x + 47, 6x + 57, 5x + 75, 2x + 19, x + 15, 15, 5x + 57

b) 15, x + 15, 5x + 75, 5x + 57, 6x + 57, 2x+19, 2x + 94, x + 47, x

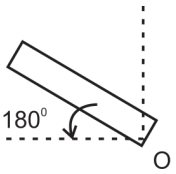
c) x, x + 47, 2x + 94, 2x +19, 6x + 57, 5x + 57, 5x + 75, x + 15, 15

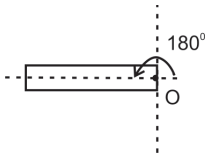
d) 5x + 57, 15, x + 15, 2x + 19, 5x + 75, 6x + 57, x +47, 2x + 94, x

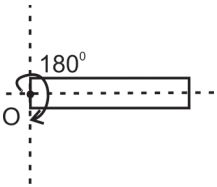
37. Asha can stitch 'x' shirts in $\frac{3}{4}$ minutes. At this rate, how many shirts can she stitch in $\frac{3}{4}th$ of an hour?

a) $50\,x$ b) $\frac{9}{16}x$ c) $60\,x$ d) $\frac{16}{9}x$

38. Which one is correct rotation about the point O at an angle of 180^0 of the given figure.

a) 

b) 

c) 

d) None

39. In an examination, there are five subjects and each has the same maximum. A boy's marks are in the ratio 3:4:5:6:7 and his aggregate is $\frac{3}{5}$ th of the full marks. Number of subjects he got more than 50% marks is

a) 1 b)2 c) 3 d) 4

40. What should be subtracted from $x^3 + 2x^2 - 3x + 10$, so that the difference is a multiple of $x - 2$?

a) 10 b) 40 c) 20 d) 50

SECTION - V 10 × 1 = 10

DIRECTIONS: (41 - 50) – Choose the correct answers (More than one correct answer) from the given options and write in the answer sheet.

41. $\sqrt{X}$ is a perfect square. Which of the following is necessarily be true.

a) X is a perfect square b) X^2 is a perfect square

c) X is a even number d) X is a odd Number

42. Which of the following statements are false.

a) In a trapezium the diagonals bisect each other

b) In a rectangle diagonals intersect at right angles

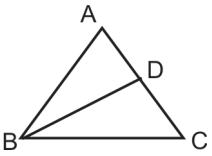
c) The diagonals of a rhombus are equal

d) None of these

43. If $7^{a^b} = 2401$ where a and b are positive integers and $a \neq 1$ then which of the following is not correct.

a) a = b b) a > b

c) a < b d) $a \neq b$

44. 

In the figure above, BD is the altitue drawn to AC. Triangles ABD and CBD are congruent if

a) AB = BC b) AD = CD

c) $AB \parallel BC$ d) $\angle A \neq \angle C$

45. The inner and the outer radii of a circular track are 7m and 14 m respectively. Find the cost of levelling the track at the rate of Rs.100 per m^2.

The following are the step involved in solving the above problem.

a) Area of circular track = $\pi(R^2 - r^2)$ and given R = 14 m and r = 7 m.

b) Area of circular track $\frac{22}{7}(196-49)$

c) Cost of levelling the path = 462 × 100 = Rs.46200

d) Area of the track = $\frac{22}{7} \times 147 = 22 \times 21 = 462 m^2$

46. A : B = 2 : 3, B : C = 5 : 6 then A : B : C =

a) 15 : 10 : 18 b) 2 × 5 : 3× 5 : 3 ×6

c) 18 : 15 : 10 d) 10 : 15 : 18

47. If x and y are two rational numbers, then which of the following statements is wrong?

a) $|x+y| \leq |x| + |y|$ b) $|x \times y| = |x| \times |y|$

c) $|x-y| \leq |x| - |y|$ d) None of these

48. Solve for t, $3t - 8 \leq - t$ in the set of whole numbers.

a) 0 b) 1 c) 4 d) 2

49. The adjacent angle of a rhombus are $2x - 35^0$ and $x + 5^0$ then x is

a) $x > 60^0$ b) $x < 90^0$ c) $x = 70^0$ d) $x \leq 100^0$

50. The two missing numbers shown with asterisk in the equation

$5\frac{3}{*} \times * \frac{1}{2} = 19$ are

a) 7 b) 3 c) 8 d) 11

SECTION - VI 10 × 1 = 10

Assertion & Reason

DIRECTIONS : (51-60) – Each of these questions contains an Assertion followed by reason. Read them carefully and answer the question on the basis of following options. You have to select the one that best describes the two statements and write in the answer sheet.

a) If both **Assertion** and **Reason** are **correct** and Reason is the **Correct explanation** of Assertion.

b) If both **Assertion** and **Reason** are correct, but Reason is **not the correct explanation** of Assertion.

c) If **Assertion** is **correct** but **Reason** is **incorrect.**

d) If **Assertion** is **incorrect** but **Reason** is **correct.**

51. **Assertion:** 5 is added to both sides of the equation x + a = b but the value of the equation doesn't change.

Reason: If we perform the same mathematical operation on both sides of the equation its value doesn't change.

52. **Assertion:** a+(b+c) = (a+b) + c is called associative law in addition

    Reason: If a = 5, b = – 1, C = 3 then satisfied the associative law

53. **Assertion:** There does not exist any rational number whose square is 4

    Reason: $2 \times 2 = 4$, $2^2 = 4$

54. **Assertion:** (3,5) and (17,19) are twin primes

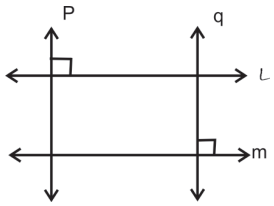
    Reason: A pair of primes which differ by 2 are called twin primes

55. **Assertion:** For R = 15, The given system of equations 7x – y = 5 and 21x - 3y = R becomes inconsistent.

    Reason: System of equaltions 7x – y = 5 and 21 x - 3y = R becomes consistent for R = 15.

56. **Assertion:** If two lines are respectively perpendicular to two parallel lines then these lines are parallel to each other.

    Reason: Since angle between p and *l* is 90^0 and the angle between q and m is 90^0 therefore line p is parallel to q.



57. **Assertion:** In a regular polygon.

    i) all sides are equal

    ii) all interior angles are equal

    iii) all exterior angles are equal

    Reason: A polygon is called regular polygon if all its sides as well as angles are equal.

58. **Assertion:** If the mean of the squares of first n natural numbers is 105, then the median of first n natural numbers is 9.

    Reason: The mean of squares of n natural numbers is $\frac{(n+1)(2n+1)}{6}$

59. **Assertion:** Cube root of 64000 is 40 and 64000 is a perfect cube.

    Reason: No cube can end with exactly two zeros.

60. **Assertion:** Two whole numbers whose sum is 64, cannot be in the ratio 3 : 4

    Reason: For dividing a number into two whole numbers, the sum of the terms of the ratio must be a factors of that number.

SOLUTIONS TO MODEL PAPER - II

SECTION – I

Fill in the Blanks

1) $\frac{4}{15}$ 2) 75 3) 34 4) 100

5) $\frac{5}{-8} < 0 < \frac{2}{7} < \frac{1}{3}$ 6) $a^{\frac{-p}{q}}$ 7) $3x^2 - 15x + 4$

8) 200 9) $\angle A$

10) angle of rotation

SECTION – II

True / False

11) False 12) True 13) False 14) True

15) True 16) False 17) True 18) False

19) True 20) True

SECTION – III

Match the Following

21) $\rightarrow$ p 22) $\rightarrow$ m 23) $\rightarrow$ O 24) $\rightarrow$ a

25) $\rightarrow$ d 26) $\rightarrow$ j 27) $\rightarrow$ n 28) $\rightarrow$ i

29) $\rightarrow$ f 30) $\rightarrow$ g

SECTION – IV

Multiple Choice Questions

31) a 32) b 33) d 34) d

35) b 36) c 37) c 38) b

39) c 40) c

SECTION – V

More than one correct answers

41) a, b	42) a, d	43) c, d	44) a, b
45) a, b, d	46) b, d	47) a, b	48) a, b, d
49) a, b, c	50) a, b		

SECTION – VI

Assertion & Reason

51. a) If both **Assertion** and **Reason** are **correct** and Reason is the **Correct explanation** of Assertion.

52. a) If both **Assertion** and **Reason** are **correct** and Reason is the **Correct explanation** of Assertion.

53. c) If **Assertion** is **correct** but **Reason** is **incorrect.**

54. a) If both **Assertion** and **Reason** are **correct** and Reason is the **Correct explanation** of Assertion.

55. d) If **Assertion** is **incorrect** but **Reason** is **correct.**

56. a) If both **Assertion** and **Reason** are **correct** and Reason is the **Correct explanation** of Assertion.

57. a) If both **Assertion** and **Reason** are **correct** and Reason is the **Correct explanation** of Assertion.

58. a) If both **Assertion** and **Reason** are **correct** and Reason is the **Correct explanation** of Assertion.

59. a) If both **Assertion** and **Reason** are **correct** and Reason is the **Correct explanation** of Assertion.

60. a) If both **Assertion** and **Reason** are **correct** and Reason is the **Correct explanation** of Assertion.