Consider the following for the next ten (10)
items that follow:
Mark option (a) if the question can be
answered by using either statement alone.
Mark option (c) if the question can be
answered by using either statement alone.
Mark option (c) if the question can be
answered by using both the statements
together.
Mark option (d) if the question can be
answered by using both the statements
together.
Mark option (d) if the question can be
answered by using both the statements
together.
Mark option (d) if the question can be
answered ven by using both the statements
together.
Mark option (d) if the question cannot be
answered ven by using both the statements
together.
Mark option (d) if the question cannot be
answered ven by using both the statements
together.
1. Question : Is m > n if m, n are real numbers?
Statement II:

$$m = pn$$

 d^{-n}
2. Question : What is the other root of
the roots is $-\frac{4}{2}(3 + \sqrt{10})$.
Statement II:
 $m = pn$
 d^{-n}
2. Question : What is the other root of the
questratic equation with real coefficients if one
of the roots is $-\frac{3}{2}(3 + \sqrt{10})$.
Statement II:
The sum of roots of quadratic equation is -1 .
 $MUP-T-EMT$
 $(3-c)$
 $(3-c)$

| is average of the largest and the 1 | 1. A sphere . |
|----------------------------------------------------------------|---------------------------------------------------------------------------|
| uestion of 4 given numbers greater than the | circular and radius b |
| of the 4 numbers ? | water The is dropped in a right |
| verage of the | 10 cm It radius of sel partly filled with |
| tatement. | in water the sphere cylindrical vessel is |
| The difference between the largest and the | rise in the how much |
| second largest numbers is less than the | cylindrical will the level of water |
| difference between the second smallest and | (a) $\frac{5}{2}$ cm |
| the smallest of the numbers. | 3 |
| Statement-II: | (b) $\frac{5}{2}$ cm |
| The difference between the largest and the | 2 34 |
| smallest numbers is greater than the | (c) $1 \mathrm{cm}$ |
| difference between the second largest and the | 5 - 5 - 200 |
| second smallest of the numbers. | (d) $\frac{3}{6}$ cm $7p + 6pn + 3n$ |
| D. | 49 1 8 |
| Question : Is $(a - b + c) > (a + b - c)$, where a, I | b 12. Consider the full 1 |
| and c are real numbers ? | the following statements : |
| Statement-I: | 1. The angle in a sector greater than a |
| b is negative. | semi-circle is less than a right angle. |
| Statement-II: | 2. If two sides of a pair of opposite sides of |
| c is negative. | a cyclic quadrilateral are equal, then its |
| | diagonals are also equal. |
| 9. Question : What is the cost of 15 per | ns, Which of the statements given above is/are |
| 21 pencils and 18 note books? | correct ? |
| Statement-I: | (a) 1 only |
| The cost of 7 pens, 6 pencils and 5 note bo | poks (1) a shu |
| $16 \neq 200.$ | (b) 2 only |
| Statement-II : | (c) Both 1 and 2 |
| The cost of 3 pens, 8 pencils and 7 note b is \neq 210 | ooks (d) Neither 1 nor 2 |
| is < 210. | real numbers such that |
| 10. Question : What is the area of the tri | 13. If a, b, c, x, y, z are real tables $3(x^2 + y^2 + z^2) = 0$, |
| inscribed in a semi-circle with the diame | $(a + b + c)^2 - 3 (ab + b)^2$ |
| the base ? | then which one of $y \equiv z \neq 0$ |
| Statement-I: | (a) $a = b = c, x = y$ (b) $x = y = z = 1$ |
| The diameter of semi-circle is 20 cm. | (b) $a = b = c = 0, x = y$ |
| Statement-II : | (a) $a = b = c, x = y = z = 0$ |
| ¹ wo shorter sides of the triangle are and 16 cm | 12 cm $(c) = b \neq c, x = y = z = 0$ |
| JNUP-LEMT VA 16 | (d) a ^r |
| | (5-C) |
| | L. O. D. |
| | |



\ (d) 340

Consider the following for the next (05) items that follow :

A, B, C, D, E, F and G are cousins. D is thrice as old as A. Further, C is as many years younger to B, as G to E and E to D. The average age of D and G is 16 years; the average age of A and E is 11 years; the average age of B and C is also 11 years. B and C have equal weight. A's weight is 10 kg less than that of B; D is 4 kg heavier than E; E is 4 kg heavier than F; F is 4 kg heavier than G. Further, D has age-weight ratio of 9:20, where age is in years and weight in kg; A has age-weight ratio of 2 : 5. Moreover, none of them is more than 40 kg.

16. What is D's age (in years)?

- (a) 15
- (b) 16
- (c) 17
- (d) 18

JNUP-T-EMT

(b)

(c)

- What is the average age (in years) of B, C, D, 1314
- (d) 15
- What is the difference between the weights
 - (a) 4 ()+ q+()+ 3+() = 280 × 5 (b) 3 +2+(13+3 0 240×3 + 1400 - 7-20 - 240×3 2 (c) (d) 1
- What is the average weight (in kg) of A, H, C D, E, F and G?
 - 201(a) (b)
 - (c) 30
 - (**d**) 32

20.

Consider the following statements :

- The age of F cannot be determined due 1. to insufficient data.
- The average weight of D and F is equal 2. to weight of E.
- The weight difference is maximum for D 3. and A.

Which of the statements given above are correct?

- 1 and 2 only (a)
- 2 and 3 only (b)
- 1 and 3 only (c)
- 1, 2 and 3 (d)

(7 - C)

21. Which of the following is/are identity/identities ? 1. $\frac{\sin^3 \theta + \cos^3 \theta}{\sin \theta + \cos \theta} + \sin \theta \cos \theta = 1; \ 0 < \theta < \frac{\pi}{2}$ 2. $1 - \sin^6 \theta = \cos^2 \theta (\cos^4 \theta + 3 \sin^2 \theta)$ Select the correct answer using the code given below :

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

22. If $7 \sin^4 \theta + 9 \cos^4 \theta + 42 \sin^2 \theta = 16, 0 < \theta < \frac{\pi}{2}$ then what is $\tan \theta$ equal to? (a) $\sqrt{2}$ (b) $\sqrt{2}$ (c) $\sqrt{3}$ (d) $\frac{1}{\sqrt{3}}$ (d) $\frac{1}{\sqrt{3}}$ (e) $\sqrt{3}$ (f) $\sqrt{2}$ (f) $\sqrt{3}$ (h) $\sqrt{2}$

23. An isosceles triangle has its base length 2a and its height is h. On each side of the triangle a square is drawn external to the triangle. What is the area of the figure thus formed ?

- (a) $6a^2 + 2h^2 + 2ah$
- (b) $6a^2 + 2h^2 + ah$
- (c) $4a^2 + 2h^2 + ah$
- (d) $6a^2 + h^2 + ah$

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24. If
$$p = a^{2}$$

 $r = c^{2} \frac{(b-a)(c-a)}{(a-c)(b-c)}$, $q = b^{2} \frac{b^{2}}{(c-b)(a-b)}$,

equal to?

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25. Which one of the following is a factor of $a^2 - b^2 - c^2 + 2bc + a + b - c$? (a) a + b + c + 1 for 30° 1 (b) a - b - c + 1 for 30° 1 (c) a + b + c - 1 for 2(d) a - b + c + 1, for 4 a - b + c + 1, for 4(d) a - b + c + 1, for 4 b° 1 (e) a - b + c + 1, for 4 b° 1 (for 4(for 4(for 4(for 4(for 4) (for 4(for 4) (for 4) (for

26. Let α and β be the roots of the equation $\frac{1}{x+a+b} = \frac{1}{x} + \frac{1}{a} + \frac{1}{b}; a \neq 0, b \neq 0, x \neq 0.$ Which one of the following is a quadratic

equation whose roots are α^2 and β^2 ?

- (a) $x^2 + (a^2 + b^2) x + a^2 b^2 = 0$
- (b) $x^2 (a^2 + b^2)x + a^2b^2 = 0$
- (c) $x^2 (a^2 + b^2) x a^2 b^2 = 0$ (d) $x^2 + (a^2 + b^2) x - a^2 b^2 = 0$

(9-C)

(a - b),

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 $+\frac{1}{b};$

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β2

27.
$$\| x + \frac{6}{7 - \frac{6}{1 - \frac{6}{7 - \frac{6}{1 - \frac{6}{7 - \frac{6}{1 - \frac{1}{1 - \frac{6}{1 - \frac{6}{1 - \frac{6}{1 - \frac{1}{1 - \frac{6}{1 - \frac{1}{1 - \frac{6}{1 - \frac{1}{1 -$$

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Three solid lead spheres of diameters 6 cm, 38. $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast $8 \text{ cm}^{\text{and}} 10 \text{ cm}$ are melted together and recast 8 cm

1622

(a) 25%

35.

- (b) 26%
- (c) 27%
- (d) 28%

36. A solid sphere of radius 3 cm is melted to form a hollow cylinder of height 4 cm and external diameter 10 cm. What is the thickness of the cylinder?

- (a) 0.42 cm
- $(b) \quad 0{\cdot}46\ cm$
- (c) 0.50 cm
- (d) 1.00 cm
- 37. Three glasses P, Q and R have capacities in the ratio 1 : 2 : 3. All these glasses are completely filled with mixtures of milk and water. The ratio of milk to water in P is 1 : 2, in Q it is 2 : 3 and in R it is 3 : 1. If the content of all three glasses are put into a bigger container, what will be the ratio of milk to water in the container ?
 - (a) 203 : 117
 - (b) **203 : 157**
 - (c) 172:91 $\frac{1}{3}\times\frac{2}{5}\times\frac{3}{9}$
 - (d) 165 : 88

JNUP-T-EMT

えきよい ちころし What is the LCM of $x^4 + x^2y^2 + y^4$, $x^3 + y^3$, 1 + 4 + 16 $(x^2 - y^2)(x^4 + x^2y^2 + y^4)^2$ (b) $(\chi^2 - y^2)(\chi^4 + 2\chi^2 y^2 + y^4)$ 2527=175 (c) $(x^6 - y^6)$ (d) $(x^{6} + y^{6})$ 2 apr 7x(16+4+1)39. What is $\frac{x^2 - y^2 - z^2 - 2yz}{x^2 + y^2 - z^2 + 2xy} + \frac{x^2 - y^2 - z^2 - 2yz}{x^2 - y^2 + z^2 - 2xz}$ equal to? 21 21 $\frac{x}{x+y-z}$ (a) $\frac{y+z}{x+y-z}$ (b) $\frac{2x}{x+y-z}$ (c) (d) $\frac{2y+2z}{x+y-z}$

If $\tan A + \cot A = 2$, where $0 < A < 90^\circ$, then what is the value of $\tan^2 A + \tan^3 A + \tan^4 A + \dots + \tan^n A$?

1+1+-1 (a) 123 (b) n-2 adda

(13 - C)

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What $\frac{i^{b}}{b}$ corners of the cuboid with $\frac{1}{b}$ What is the corners of the cuboid with edges through the and 24 cm ? 41. s cm, 12 cm and 24 cm ?

10.5 cm 14 cm 21 cm

42. A lamp shade is in the shape of a part of a cone and its top and bottom ends are circles whose circumferences are respectively 30 cm and 40 cm. The perpendicular distance between the ends is 6 cm. If the cone were to be completed, then how far would its vertex be from the top end ?

20 cm (a)

(A)

(b)

(c)

(d)

28 cm

- 18 cm (b)
- (c) 12 cm
- (d) 9 cm



interest per annum becomes more than 100 times in n years. What is the least value of n ? (Use $\log_{10} 2 = 0.301$, $\log_{10} 3 = 0.477$)

(a) 23(b) 24(c)

25

26



JNUP-T-EMT

 (\mathbf{d})



12.2 cm (d)

(15 - C)



The circumference of a circle exceeds the

The circuit 16.8 cm. What is the diameter of diameter of $\frac{22}{2}$ 48. the circle ? (Take $\pi = \frac{22}{7}$)



The hypotenuse AC of a right-angled ABC is 49. $3\sqrt{5}$ cm. If AB is doubled and BC is tripled such that ABC remains a right-angled triangle, the hypotenuse becomes 15 cm. What is AB + BC equal to ?



- 50. What is the area of the region between two concentric circles if the chord of the outer circle of length 14 cm is a tangent of the inner $\overline{\text{circle ? (Take } \pi = \frac{22}{7})}$
 - (a) 125 square cm
 - (b) 132 square cm
 - (c) 144 square cm
 - (d) 154 square cm

JNUP-T-EMT

Consider the $foll_{0u_0}$ in g for the next two (02)

A line segment AB is bisected at C and semi-circles C and S_{corr} S_1 , S_2 and S_3 are d_{rawn} respectively on AB, AC and CB as diameters such that they all lie on same side of AB. A circle S is drawn touching internally S_1 and

51. If r is the radius of S and R is the radius of S_2 , then which one of the following is correct ?



If m is the area of the circle S and n is the 52. area of semi-circle S1, then which one of the following is correct ?

(a)
$$9m = 2n$$

9m = 4n(b)

(c)
$$3m = 2r$$

(d)
$$7m = 3n$$

(17 - C)

$$\frac{1}{2} \frac{1}{2} \frac{1}$$

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Consider the following for the next two (02)

items that follow :

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58.

ouped frequency distribution is given below :

| Weekly wages in Rupees (₹) | Numbers of workers |
|-------------------------------|-----------------------|
| 2050 - 2550 | 5 |
| 2550 - 3050 | 10 |
| 3050 - 3550 | k |
| 3550 - 4050 | 8 |
| 4050 - 4550 | 2 |
| 4550 - 5050 | 10 |

If average weekly wages earned by a worker is 57

| ₹ 3,520, then what is the value of k ? | | | |
|----------------------------------------|--------|-------|----|
| (a) | 10 | 2i | ti |
| (b) | 12 | 230D | 5 |
| (\mathbf{c}) | 15 | 2800 | /6 |
| (0) | 10 | 3300 | ¢ |
| (d) | 20 | 2800 | 8 |
| | | 4300 | 2 |
| What | is the | 19900 | (D |

distribution? P+5 (a) ₹ 3,263 280 240 120500 **(b**) ₹ 3,383 004 (c) ₹ 3,413 86 480 (**d**) ₹ 3,483 120 5 JNUP-T-EMT (21 - C)

Consider the following for the next two (02) items that follow :

A quadratic equation is given by $(a + b + c) x^{2} - (2a + 2b) x + (a + b - c) = 0;$ where a, b and c are real and distinct.

59.



Consider the following statements : 60.

- 1. One of the roots of the equation is always less than 1 if a, b and c are all positive.
- One of the roots of the equation is $\mathbf{2}$. always negative if a, b and c are all negative.

Which of the statements given above is/are correct?

(a)
$$1 \text{ only} (33 \text{ K} + 1205) \times 100 = 3520$$

(b) $2 \text{ only} = 354 \text{ K}$

- 2 only (b)
- Both 1 and 2 (c)
- Neither 1 nor 2 (d)
- 33K + 1205 = 3.52

Consider the following for the next two (02) items that follow :

A flagstaff stands on the top of a vertical tower. The angle of elevation of the top of the flagstaff from a certain place on the same horizontal level with the base of the tower is found to be α . Advancing a distance d towards the tower in the same horizontal plane, the angle of elevation of the top of the flagstaff is observed to be β and that of the top of the tower is observed to be γ . Let H be the height of the top of the flagstaff from the base of the tower and h be the height of the tower.

- 61. Which one of the following is correct?
 - H tan γ h tan β = 0 (a)
 - (b) h tan γ – H tan β = 0
 - (c) H tan γ – h tan α = 0
 - (d) h tan γ – H tan α = 0
- Which one of the following is correct ? **62**.

(a)
$$d = \frac{H(\cot \alpha - \cot \beta)}{2}$$

(b)
$$d = \frac{H(\tan \alpha - \tan \beta)}{2}$$

- (c) $\mathbf{d} = \mathbf{H} \left(\cot \alpha - \cot \beta \right)$
- (**d**) $d = H (tan \alpha - tan \beta)$

JNUP-T-EMT

Consider the following for the next two (02) items that $foll_{0w}$.

AB is a straight road leading to the foot P of a tower of height h. $Q_{is at a}$ of height h. Q is at distance x from P and R is at a Q: R, distance y from Q (R is farther from P and R = Q; R, O are on the same visit for the same visit of Q are on the same side). The angle of elevation of the top of the top T. the top of the tower at Q is twice of that at R. (Use the formula $\tan 2\theta = 2 \tan \theta$

$$1 - \tan^2 \theta$$

63.

- Which one of the following is correct? X = y
- (b) X < y
- (c) x > y
- (d) Cannot be concluded due to insufficient

Which one of the following is correct ? 64.

- (a) $h^2 = x^2 y^2$
- (b) $h^2 = x^2 + y^2$
- (c) $h^2 = 2(y^2 x^2)$
- (d) $h^2 = v^2 x^2$

Consider the following for the next two (02) items that follow :

Two parallel chords AB and CD of a circle are of lengths 60 cm and 80 cm respectively. They are on the same side of the centre O and 10 cm apart.

What is the diameter of the circle ? 65.

- 120 cm (a)
- 110 cm (b)
- 100 cm (c)
- 90 cm (**d**)

(23 - C)

| 66. If the chord AB subtends an angle α and chord | d Consider the en |
|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| CD subtends an angle β at the centre O, the | items that follow: |
| what is the value of $\tan\left(\frac{\beta}{2}\right) - \tan\left(\frac{\alpha}{2}\right)$? | A right coniect |
| (a) $\frac{3}{4}$ (2) | one above the other on a table such that it touches |
| (b) $\frac{5}{12}$ | sphere and R be the radius of the smaller Let 20 be the vertical angle of the |
| (c) $\frac{1}{2}$ | 69. What is the height of the |
| (d) $\frac{7}{12}$ (and (a) 1) | (a) $\frac{2r^2}{R-r}$ |
| Consider the following for the next two (02) items that follow : | (b) $\frac{2R^2}{R-r}$ |
| Let $p = x^4 - y^2 z^2$, $q = y^4 - z^2 x^2$, $r = z^4 - x^2 y^2$. | (c) $\frac{2(r^2 + R^2)}{R - r}$ |
| 67. What is $px^2 + qy^2 + rz^2$ equal to? (a) $(x^2 + y^2 + z^2) (p + q + r)$ | $(d) \qquad \frac{r^2 + R^2}{R - r}$ |
| (b) $-(x^2 + y^2 + z^2)(p + q + r)$ (c) $(y^2 + z^2 - x^2)(r)$ | |
| (d) $(x^2 + y^2 - z^2)(p - q - r)$ | 70. What is the radius of the base of the cone ? |
| | (a) $\frac{2r^2 \tan \theta}{R-r}$ |
| to? | $(b) \frac{2R^2 \tan \theta}{R-r}$ |
| (a) 0 and 1 | |
| (b) 1 | (c) $\frac{2(\mathbf{r}^2 + \mathbf{R}^2)\tan\theta}{\mathbf{R} - \mathbf{r}}$ |
| $(c) \mathbf{p} + \mathbf{q} + \mathbf{r}$ | $2 - \overline{n}^2$) + $ 0$ |
| (d) $x^2 + y^2 + z^2$ | (d) $\frac{(r^2 + R^2) \tan \theta}{R - r}$ |
| JNUP-T-EMT (25 – C | 2) |

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| 71. Consider the following | |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1. If $(a + b)$ is d | T. |
| $(a - b)$, then $(a^2 + b^2)$ proportional | 7 |
| proportional to ab. is direct | 0 |
| 2. If a is directly properti | <i>y</i> |
| $(a^2 - b^2)$ is directly properties by the | n |
| Which of the statements give | |
| correct? | e |
| (a) 1 only (b) 2 only | |
| $(c) \qquad \text{Both 1} \qquad (c)$ | |
| $\begin{array}{c} \text{(c)} \text{Both 1 and 2} \\ \text{(d)} \text{New} \end{array}$ | |
| (d) Neither 1 nor 2 | |
| 72. If $(3a + 6b + c + 2d) + (a)$ | |
| $(3a - 6b + c - 2d) \times (3a - 6b - c + 2d) =$ | |
| which one of the following is correct 2 , then | 76. |
| (a) $ab = cd$ | |
| (b) $ac = bd$ | |
| (c) $ad = bc$ | |
| (d) ad + bc = 0 | |
| 73. If $3 \sin \theta + 5 = 0$ | |
| of $5 \sin \theta + 3 \cos \theta = 5$, then what is the value | |
| (a) 5 (a) 5 | |
| (b) $-3 - 16 - 70 - 70 n$ | |
| $(c) = 3 \qquad 10 = -4(-381)$ | |
| $(c) = 2 \qquad \qquad$ | |
| (d) 0 | 77 |
| 74. The combined age of a man | |
| 6 times the combined age of their shill | |
| Two years ago their combined age woo | |
| and six years he combined age of their children: | |
| 3 times the combined | |
| How many children do they have if an have | |
| is at least 2 years old? | |
| (a) 2 | |
| (b) 3 | |
| (c) 4 . La Ingli fort | |
| Let 5 fandre fat | |
| | |
| (27 - | C) |
| C Y | |
| | |

What is 5. $3(\sin x - \cos x)^4 + 6(\sin x + \cos x)^2 +$ $4 (\sin x)^6 + 4 (\cos x)^6$ equal to ? $n^{2} - 53(n-1) - 53n^{2}$ (a) 9 (b) 11 (c) 13(d) 15 What is the value of $\sin \theta + \cos \theta$, if θ satisfies the equation $\cot^2 \theta - (\sqrt{3} + 1) \cot \theta + \sqrt{3} = 0;$ $0 < \theta < \frac{\pi}{4}$? $\sqrt{2}$ $\chi + \chi = 6 \times C$ (a) 2+y-4 = 10x((-10xn) (b) 2 $\frac{\sqrt{3}+1}{2} \quad \chi + \chi + 1 \chi = 3 \times (C + 6 \pi)$ (c) (d) $\frac{\sqrt{3}-1}{2}$ GC-Y = 10C - 20N 6C+12 = 3C+18N Which one of the following is a value of θ , if θ satisfies the equation $\tan 2\theta \tan 4\theta - 1 = 0$; $0 < \theta < \frac{\pi}{2} ?$ -16 45 11 34 tom $\frac{\pi}{12}$ (a) tan(20+40) = lan 20+ hig 1-2 π (b) 15 π (c) 6 >> Jan 20 - Jan 40 =0 $\frac{\pi}{5}$ (d) > @ » <u>TT</u>. (450) 20=11 0 =

s x)⁶

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The first set of the many values of
$$\theta$$
 will satisfy the equation
(a) $\sin \theta - \cos \theta$ (b) $\sin \theta - \cos \theta$ (c) $\frac{\pi}{3}$ (c) $\frac{\pi}{3}$ (c) $\frac{\sin \theta + \cos \theta}{2}$ (c) $\frac{\pi}{2}$ (c) $\frac{\pi}{2}$

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$$\begin{array}{c} x & C_{1} + x \\ cqual to ? \\ cqual to ? \\ cqual to ? \\ (a) & 4 \\ (b) & 3 \\ (c) & 2 \\ (d) & 1 \\ (c) & -2 \\ (c) & -2 \\ (d) & 1 \\ (c) & -2 \\ (c) & -2 \\ (d) & 1 \\ (c) & -2 \\ (c) & -2 \\ (d) & 1 \\ (c) & -2 \\ (c) & -2 \\ (d) & 1 \\ (c) & -2 \\ (c) & -2 \\ (d) & 1 \\ (c) & -2 \\ (d) & -2 \\ (c) & -2 \\ (d) &$$

ननी

If $a^2 - bc = \alpha$, $b^2 - ac = \beta$, $c^2 - ab = \gamma$, then 95. 91. what is $\frac{a\alpha + b\beta + c\gamma}{(a + b + c)(\alpha + \beta + \gamma)}$ equal to ? (a)a+b-c**(b)** a - b + c12 (c) -a+b+c(d) 1 (]If $(x - 1)^3$ is a factor of $x^4 + \alpha x^3 + \beta x^2 + \gamma x - 1$, 92. then the other factor will be : (0 (a) x + 1 (d) **(b)** x - 3(c) x + 296. (d) х 93. A 2-digit number is such that the sum of the

number and the number obtained by reversing the order of the digits of the number is 55. Further, the difference of the given number and the number obtained by reversing the order of the digits of the number is 45. What is the product of the digits ?

- (a) 5
- (b) 2 (c) 1

(d) 0

- 94. If A and B can finish a work in 10 days, B and C can finish the same work in 12 days, C and A can finish the same work in 15 days; then in how many days can A, B and C together finish half of the work ?
 - (a) 8'days
 - (b) 5 days
 - (c) 4 days
 - (**d**) 3 days

JNUP-T-EMT

A person borrowed ₹ 10,000 at 12% rate of interest per annum compounded quarterly for a period of 9 months. What is the interest paid by him to settle his account after 9 months?

₹ 987.87

- For what relation between a and b is the equation $\sin \theta = \frac{a+b}{2\sqrt{ab}}$ possible ? (a) a=b 🞯 (b) · (c) a≥b JJAL 20 (d) a > b
- 97.

Three persons A, B and C together can do a piece of work in 36 days. A and B together can do five times as much work as C alone; B and C together can do as much work as A alone. If A and C together can do n times as much work as B alone, then what is the value At SIL -(a) 1.5SC **(b)** $\mathbf{2}$ C (c) $2 \cdot 5$ AfC nB

(33 - C)

(**d**)

| 98. If $\frac{2a}{3} = \frac{4b}{5} = \frac{3c}{4}$, then what is the value of $18\sqrt{2}$ | 100. If the median of she |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| $\frac{1}{a}\sqrt{a^2 + c^2 - b^2}$? | 12, 1, 8, 54, 61, 28, 45, 35, 21, 17 is M, then where |
| √355 | (a) 12 |
| (c) $\sqrt{375}$ (d) $3\sqrt{15}$ | (b) $\frac{28}{28}$ 274 $\frac{49}{7}$ + 1 (c) 52 h 57 |
| | L (d) 54 2 28 49 |
| 99. The sum of deviations of n numbers from 10 and 20 are a, b respectively. If b | 1, 8, 12, 12, 20, 28 3 |
| then what is the mean of these n numbers ? | 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| (a) 12 (b) 14 | |
| (c) 16 | $\frac{29}{3} = \frac{45}{5}$ $\frac{4}{5} = \frac{42}{5}$ $\frac{2}{2}$ $\frac{2}{5}$ |
| (d) 18 | |

$$\frac{44}{5} = \frac{34}{5} + \frac{5}{5} = \frac{5}{5} + \frac{$$