



## MATHS

### BOOKS - S CHAND MATHS (ENGLISH)

### SAMPLE QUESTION PAPER 3

#### Section A

1. Find the domain of the function

$$f(x) = \frac{1}{\log(4 - x)}$$

A.  $f(x) = (-\infty, 4)$

B.  $f(x) = (\infty, 4)$

C.  $f(x) = (\infty, -4)$

D.  $f(x) = (-\infty, -4) \because$

**Answer: A**



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2. The value of  $\cot A + \tan(\pi + A) + \tan[(\pi/2) + A] + \tan(2\pi - A)$  is

A. 0

B. 1

C. -1

D.  $\infty$

**Answer: C**



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3. The value of  $x \cot 2x - \cot 2x \cot 3x - \cot 3x \cot x$  is

A. 0

B. 1

C.  $-1$

D. Not defined

**Answer: B**



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4. in cube roots of unity are  $1, \omega$  and  $\omega^2$ , the value  $(1 + \omega - \omega^2)^{32}$  is.

A.  $2^{32}$

B.  $2^{32} \cdot \omega^2$

C.  $-2^{32} \cdot \omega^2$

D.  $2^{32}$

**Answer: A**



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5. The coefficient of  $x$  the equation  $x^2 + px + q = 0$  was taken as 17 in place of 13 and thus its roots were to be  $-2$  and  $-15$ . The roots of the original equation is

- A. 3,10
- B.  $3 - 10$
- C. 3, 10
- D.  $-3, 10$

**Answer: D**



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6. The number of terms in the expansion of  $(5x + 4)^{10} + (5x - 4)^{10}$  is

- A. 4
- B. 5
- C. 6

D. 7

**Answer: C**



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7. The first term of G.P with real is 1. If the sum of its third and fifty terms is 90, the common ratio of the G.P is

A. 0

B.  $\pm 1$

C.  $\pm 2$

D.  $\pm 3$

**Answer: D**



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8. If the origin is shifted to (3,4), then the new co-ordinates of  $(-2, 3)$  will be

A.  $(-1, -5)$

B.  $(-5, -1)$

C.  $(-1, -1)$

D.  $(-5, -5)$

**Answer: B**



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9. The equation of circle when end points of its diamete are  $(-2, 3)$  and  $(0, 1)$

A.  $x^2 + y^2 + 2x - 2y - 3 = 0$

B.  $x^2 + y^2 + 2x - 2y + 3 = 0$

C.  $x^2 + y^2 + x - y - 3 = 0$

D.  $x^2 + y^2 + x - y + 3 = 0$

**Answer: A**



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10.  $\lim_{x \rightarrow 2} \frac{x^{14} - 2^{14}}{x^8 - 2^8}$  is equal to

A. 110

B. 111

C. 112

D. 113

**Answer: C**



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11. Find the number of ways in which 'PERUMTATIONS' be arranged such that P comes just before S.



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12. Find the derivative of the function  $(\sin x + \cos x)^2$ .



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13. Two real numbers  $x, y$  are chosen from the interval  $x \in [0, 3], y \in [0, 3]$ .

What is the probability that  $x^2 + y^2 \leq 2$ ?



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14. Find the slope of the line, which takes an angle of  $30^\circ$  with the positive direction of y-axis measured anticlockwise.



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15. Find the minimum value of  $\cos^2 x + \sec^2 x$ .



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16. Find the value of the following .

$$\cos 495^\circ$$



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17. Find the value of the following .

$$\tan(-1590^\circ)$$



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1. The wholesale price index (or price relative) of tomatoes in 2019 compared to 2020 is 160. If the cost of tomato was Rs. 25 per kg in 2019 , calculate the cost in 2020

A. 15

B. 35

C. 40

D. 50

**Answer: C**



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2.  $Q_3$  is always equal to

A.  $P_{75}$

B.  $P_{10}$

C.  $P_{25}$

D. P50

Answer: A



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3. Calculate the index number for 2015 with 2010 as the base year by weighted aggregate method:

Commodity	Price (in ₹) in the year 2010	Price (in ₹) in the year 2015	Weights
A	140	180	10
B	400	550	7
C	100	250	6
D	125	150	8
E	200	300	4



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4. Find the Q3 for the following distribution . 12,14,13,18,17,19,10,11,21,20,15.



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5. Compute P40 for the following distribution :

Age in years	11 – 20	21 – 30	31 – 40	41 – 50	51 – 60	61 – 70	71 – 80	81 – 90	91 – 100
No of persons	50	30	20	40	25	30	35	10	5



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