

PRE- BOARD EXAMINATIONS
CLASS 10TH MATHS

MM:70

TIME: 3 Hrs. 15 mins.

SECTION: A
MULTIPLE CHOICE QUESTION

1) The sum of the power of prime factors in prime factorization of 144 is .

- a) ~~(18,25)~~ 7
- b) (5,15) 5
- c) (7,21) 6
- d) ~~(31,93)~~ 8

2) Volume of the two sphere are in the ratio 125:64 find the ratio of their surface area is .

- a) 16:9
- b) 9:16
- c) 25:16
- d) 16:25

3) The solution of $2x+3y=18$, $x-2y=2$ will be.

- a) $x=6, y=2$
- b) $x=3, y=4$
- c) $x=3, y=8$
- d) $x=0, y=6$

4) $1/x^2 - 2 = 1/7$ find x

- a) ± 2
- b) ± 1
- c) ± 3
- d) ± 5

5. The median of the first 10 prime number .

- a. 5
- b. 11
- c. 12
- d. 13

6. If θ then find the value of $\tan \theta = \frac{8}{15}$ $\cos \theta = ?$

- a. $17/8$
- b. $8/17$
- c. $4/3$
- d. $15/17$

7. The arithmetic mean of natural number 1 to 9 will be .

- a. 5
- b. 4
- c. 3
- d. 6

8. Discriminant of the quadratic equation will be $3n^2 - 6n + 4$

- a. 13
- b. 12
- c. -12

d. $3\sqrt{2}$

9. The distance between the point $(-5, -7)$ and $(-1, 3)$.

a. $3\sqrt{2}$

b. $4\sqrt{2}$

c. $2\sqrt{2}$

d. 4

10. If $\tan \theta = 0$ then θ is equal to. $\tan \theta - \cot \theta = 0$ Find θ

a. 0°

b. 90°

c. 45°

d. 30°

11. The whole surface area of a solid hemisphere of diameter $1/2$ cm will be.

a. $\pi/8 \text{ cm}^2$

b. $3\pi/16 \text{ cm}^2$

c. $\pi/16 \text{ cm}^2$

d. $3\pi/32 \text{ cm}^2$

12. If $\sin(A+B) = \frac{3}{2}$ and $\cos(A-B) = \frac{1}{2}$ then find the value of A and B.

a. $45^\circ, 15^\circ$

b. $15^\circ, 45^\circ$

c. $45^\circ, 30^\circ$

d. $30^\circ, 45^\circ$

13. If 2 is one root of the equation $2x^2 + kx + 4 = 0$ then its other roots will be.

a. 6

b. -6

c. 1

d. -1

14. The H.C.F of 17, 23 and 29 is.

a. 29

b. 27

c. 1

d. 58

15. The area of a sector of a circle with radius 6 cm. If the angle of the sector is 60°

a. $132/7 \text{ cm}^2$

b. $100/7 \text{ cm}^2$

c. $122/7 \text{ cm}^2$

d. $135/7 \text{ cm}^2$

16. Find the probability that an ordinary year has 53 Sunday is.

a. $2/7$

b. $3/7$

c. $1/7$

d. None of these

17. The middle term of A.P 6, 13, 20, ..., 216 will be.

a. 15^{th}

b. 16^{th}

c. 18^{th}

d. 20^{th}

18. The mean of 27, 23, $x-4$, $x+4$, 15, 3, 7 is 15 then find the value of x will be.

a. 7

b. 6

c. 8

d. 15

If x , find the value of x . — $\tan 45^\circ \cos 60^\circ = \sin 60^\circ \cot 60^\circ$
 $x \cdot \frac{1}{2} = \frac{\sqrt{3}}{2} \times \frac{1}{\sqrt{3}}$

- a. 1
b. $\frac{1}{2}$
c. $\frac{1}{\sqrt{2}}$
d. $\frac{\sqrt{3}}{2}$

10. The zeroes of the polynomial $(x^2+7x+10)$ will be.

- a. (-2,-5)
b. (2,-5)
c. (2,5)
d. (-2,5)

(Section:B)

1) Do all parts : $\{2 \times 6 = 12\}$

- a) If $2\cos^2 45^\circ - 1 = \cos \theta$, then find the value of θ .
b) Find the distance between the points (a,b) and (-a,-b).
c) Find the area of quadrant of a circle whose circumference is 22cm.
d) Find the relation between x and y . If the point (x,y) is equidistant from the points (3,6) and (-3,4). $y + 3x = 5$
e) Find the two numbers whose sum is 27 and product is 182.
f) The base perimeter and vertical height of a right circular cone 24π cm and 5cm. find volume of cone.

2) Do all five parts : $\{4 \times 5 = 20\}$

- a) Find the mean of the following frequency distribution.

Class interval	20-60	60-100	100-140	140-180	180-220
Frequency	7	5	16	12	2

- b) Find the sum of the first 51 term of an A.P whose second and third term are 14 and 18.

c) Solve for x : $\frac{1}{a+b} = \frac{1}{a} + \frac{1}{b} + \frac{1}{c}$

- d) Two pillars of equal height are on either side of 100 m wide road. The angle of elevation of the top of the pillars are 60 and 30 from a point on the road. Find the position of the point between the pillars and the height of each pillars.

e) If $x = r \cos \theta$, $y = r \sin \theta$, $z = r \sin \theta$ then prove that $x^2 + y^2 + z^2 = r^2$.

3) Long answer type question ; $\{6 \times 3 = 18\}$ any three.

- a) Solve the quadratic equation $9x^2 - 15x + 6 = 0$ by quadratic formula.

- b) Solve the equation.

$1 + 4 + 7 + 10 + \dots + n = 287$

- c) Find the co-ordinate of a point P, which lies on the line segment joining the points A(-2,-2) and B(2,-4) such that A.P = 3/7 AB.

- d) Find the median;

Class interval	15-20	20-25	25-30	30-35	35-40	40-45	45-50
Frequency	14	56	60	86	74	62	48

$$x = r \cos \theta \sin \alpha$$

$$y = r \sin \theta \sin \alpha$$

$$z = r \cos \alpha$$