CLASS XI
GUESS PAPER
MATHS

Max. Marks: 100 TIME: 3 hrs

Note : Section A consists 4 questions of 1 mark each, section B consists 8 questions of 2 marks each, section C consists 11 questions of 4 marks each and section D consists 6 question of 6 marks each . All questions are compulsory to attempt.

Section: A

1. Find the Length of latus rectum for $2y^2 = 80x$.
2. Find the slope of the line Perpendicular to $3x - 4y = 5$.
3. Find the sum $3^3 + 4^3 + 5^3 + \ldots\ldots 20^3$.
4. Find the value of the expression $^{50}C_4 + \sum_{j=1}^{2} {}^{52-j}C_3$.

Section: B

5. Find which number is larger: $(1 \cdot 1)^{10000}$ or 1000.
6. If the coefficient of (r+4)th & (2r+1)th terms in the expansion of $(1+x)^{18}$ are equal, find 'r'.
7. Write the general term in the expansion of $(3x^2 - 1/5x)^8$. Find the term independent of X.
8. Find 'x' if the point (2,4,0) is at a distance of 10 units from the point (3,5,x).
9. Show that the points (5,-1,1), (7,-4,7) ,(1,-6,10) & (-1,-3,4)are the vertices of a parallelogram.
10. Find the ratio in which the line segment joining (3,5,7) &(-1,4,2) is divided by Y-Z Plane.
11. Find the distance of the point (1,-2,3) from the origin and Y-Z Plane .
12. Find the centre & radius of the circle $x^2 + y^2 - 2x + 3y = 4$.

Section: C

13. In an A.P p^{th}, q^{th} and r^{th} terms are a,b & c, Find value p(b-c)+q(c-a)+r(a-b).
14. Find the point which divides the line joining (3,4,5) & (0,3,4) in the ratio 3:2 (i) Internally, (ii) externally.
15. Prove that $2\cos^2 A$ □□□ □□$2\sin(45^0$ □□$A)\cos(45^0$ □□$A)$
16. Find the equation of the line through the intersection of the lines 4x+y =3 & 5x – y = 0 & parallel to the line 3x – 2y = 0.
17. Write down the foci, vertices and eccentricity of the hyperbola $x^2 - y^2 = 1$.

---

18. If all the permutations of the letters of the word 'INDIA' are arranged as in a dictionary. Find the 47^{th} word.
19. A group consists of 4 girls and 7 boys. In how many ways can a team of 5 members be selected if the team has at least one boy and one girl.
20. Find the equation of the line passing through the point (2, -1) & making an angle of 30^0 with x-axis.
21. Find the length of major, minor axis of the ellipse $16\,x^2 + 25\,y^2 = 400$ and coordinates for the foci, equation of directrix.
22. Derive the sum $1 + a + a^2 + a^3 + \ldots\ldots\ldots\ldots + a^n$
23. Using binomial theorem show that $6^n - 5n$ always leaves remainder 1 when divided by 25.

Section: D

24. Prove that: $\dfrac{\cos 2\theta \cdot \cos 3\theta - \cos 2\theta \cdot \cos 7\theta + \cos\theta \cdot \cos 10\theta}{\sin 4\theta \cdot \sin 3\theta - \sin 2\theta \cdot \sin 5\theta + \sin 4\theta \cdot \sin 7\theta} = \cot 6\theta \cdot \cot 5\theta.$
25. Find the coefficient of 'x' in the expansion of $(1-2x^3+3x^5)(1+1/x)^8$?
26. Find the sum of given series for a natural number m: $1^2 + 4^2 + 7^2 + \ldots + (3m-2)^2$.
27. In a survey of 60 people, it was found that 25 read news paper 'H', 26 read newspaper 'T', 9 people read newspaper 'I' where each people read exactly one newspaper. Find the number of different selections of 3 person if (i) 1 reader of each news paper, (ii) All 3 read the same news paper and (iii) exactly 2 persons read the same news paper.
28. Find the co-ordinates of the centroide of the triangle formed by the lines $y = 15$, $5x - 12y = 0$ & $3x + 4y = 0$.
29. An arch is in the form of a parabola. The arch is 10 m high at centre and 5 m wide at the base. Find how high is it at 2m from one end of the base.