Roll: 5 6 7 4

1. Use dark blue or black pen for markings.
2. Do not write or scribble anything extra.
3. Do not fold, tear, wrinkle or staple.
4. Mark only one choice per question.
5. Correct marking : ○ ● ○ ○
6. Incorrect markings : ⊗ ⌀ ⬤ ⬤

	SIWS College, Wadala
Invigilator :	
Name :	
Class :	Div :
Exam : U1	
Subject : Mathematics	

	(a)	(b)	(c)	(d)		(a)	(b)	(c)	(d)
01	○	○	●	○	11	●	○	○	○
02	○	●	○	○	12	●	○	○	○
03	○	●	○	○	13	●	○	○	○
04	○	○	●	○	14	○	○	○	●
05	●	○	○	○	15	○	○	○	●
06	○	○	●	○	16	○	○	●	○
07	●	○	○	○	17	○	○	○	○
08	○	○	○	●	18	○	○	○	○
09	●	○	○	○	19	○	○	○	○
10	●	○	○	○	20	○	○	○	○

MODEL QUESTION PAPER FOR THE FIRST UNIT TEST

PORTION : LOCUS, DETERMINANTS, LOGARITHMS, COMLEX NUMBERS

1. If the origin is shifted to (-a, p), then the old co-ordinates of (b, -q) are   [1]
   (a) (-a - b, -q - p)   (b) (-a - b, p + q)   (c) (b - a, p - q)   (d) (a - b, p - q)

2. The value of $\begin{vmatrix} 2 & 1 & -4 \\ -1 & 3 & 2 \\ 2 & 4 & 2 \end{vmatrix}$ is   [1]

   (a) 40   (b) 42   (c) 44   (d) 46

3. If $\begin{vmatrix} x-7 & x-2 \\ x-3 & x+5 \end{vmatrix} = 0$ then the value of x is   [1]

   (a) -41/3   (b) 41/3   (c) 3/41   (d) -3/41

4. The value of $[\log_{25}\sqrt{5}][\log_3(1/9)]$ is   [1]

   (a) -2   (b) -3/2   (c) -1/2   (d) none of these

5. The value of $\sqrt{0.0091}$ is   [Given log 91 = 1.9590]   [1]
   (a) antilog $\overline{2}.9795$ (b) antilog $\overline{2}.9925$ (c) antilog $\overline{2}.9295$ (d) antilog $\overline{2}.9542$

6. If a and b are real numbers and $(1 + i)a + (2 - i)b - 7 = i$, then [1]

    (a) $a = -3, b = -2$ (b) $a = 3, b = -2$ (c) $a = 3, b = 2$ (d) $a = -3, b = 2$

7. The equation of the locus of a point which is equidistant from A(-1, -3) and B(-2, -4) is [1]

    (a) $x + y + 5 = 0.$ (b) $x + y - 5 = 0.$ (c) $x - y - 5 = 0.$ (d) $x - y + 5 = 0.$

8. The equation of the locus of a point P such that the join of A(-2, 8) and B(5, 4) [2]
    subtends a right at P is

    (a) $x^2 + y^2 + 3x - 12y + 22 = 0$ (b) $x^2 + y^2 - 3x - 12y - 22 = 0$
    (c) $x^2 + y^2 + 3x + 12y + 22 = 0$ (d) $x^2 + y^2 - 3x - 12y + 22 = 0$

9. If the equations $6x + 7y - 8 = 0$, $4x + ky - 6 = 0$, $3x + 4y - 5 = 0$ are consistent, then [2]

    (a) $k = 5$ b) $k = -7$ (c) $k = 7$ (d) $k = -5$

10. If area of the triangle formed by the points (8, 6), (3, 4), (k, 8) is 14 square units, then [2]

    (a) $k = 27$ or -1   (b) $k = -27$ or 1   (c) $k = 27$ or 1   (d) $k = -1$ or -27

11. If $\begin{vmatrix} x + 1 & x - 3 & x + 5 \\ x - 3 & x + 5 & x + 1 \\ x + 5 & x + 1 & x - 3 \end{vmatrix} = 0$, then [2]

    (a) $x = -1$ (b) $x = 1$ (c) $x = 3$ (d) None of these

12. If $\log\left(\dfrac{x - y}{\sqrt{8}}\right) = \dfrac{1}{2}(\log x + \log y)$ then $\dfrac{x}{y} + \dfrac{y}{x}$ is [2]

    (a) 10   (b) 6   (c) 8   (d) none of these

13. If $\log_3(t + 2)^2 + \log_3(t - 6)^2 = 4$ then the value of ' t ' is [2]

    (a) -3 or 7   (b) 3 or - 7   (c) 3 or 7   (d) 1 or -8

14. If x and y are real numbers such that $\dfrac{1 + 3i}{2 - 5i} + \dfrac{1 - 5i}{2 + 5i} = x + yi$ then [2]

    (a) $x = \dfrac{-36}{29}$, $y = \dfrac{4}{29}$ (b) $x = \dfrac{-26}{21}$, $y = \dfrac{31}{21}$ (c) $x = \dfrac{-36}{29}$, $y = \dfrac{-2}{29}$ (d) none of these

15. If $x = 1 - 2i$, then the value of $x^3 - 3x^2 + 7x + 13$ is [2]

    (a) -2   (b) -3   (c) 13   (d) 18

16. If x and y are real numbers and $\pm(x + yi)$ is the square root of $4 + 6\sqrt{5}i$, then [2]

    (a) $y = 2\sqrt{5}$ (b) $x = 2\sqrt{5}$ (c) $y = \sqrt{5}$ (d) $x = 2$

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