

Question Booklet and Answer Key

For Recruitment Test

Held on 21.02.2015 (Evening)

Post: TGT Paper-II

(Mathematics)

‘A’ Series

संख्या: 10/2019-2020

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प्रति,

1. The vector spaces formed by the solution space of the set of equations $x_1 + x_2 + x_3 = 0$, $3x_1 + 2x_2 = 0$ and $x_2 - x_3 = 0$ has dimension :
 1) 0 2) 1 3) 2 4) 3
2. The inequality $|z - 2| < |z - 4|$ represents the half plane :
 1) $\operatorname{Re}(z) \geq 3$ 2) $\operatorname{Re}(z) = 3$ 3) $\operatorname{Re}(z) \leq 3$ 4) none of these
3. If span of $S = \{(1, 1, 0), (2, 1, 3)\}$ over \mathbb{R} is contained in \mathbb{R}^3 , then which one of the following vectors is not in the span of S ?
 1) $(0, 0, 0)$ 2) $(3, 2, 3)$ 3) $(1, 2, 3)$ 4) $(4/3, 1, 1)$
4. The smallest +ve integer n for which $\left(\frac{1+i}{1-i}\right)^n = 1$ is :
 1) 8 2) 16 3) 12 4) none of these
5. If two zeros of a polynomial, $2x^4 - 3x^3 - 3x^2 + 6x - 2$, are $\sqrt{2}$ and $\frac{1}{2}$ then other two zeros are :
 1) $-\sqrt{2}$ and -1 2) $-\sqrt{2}$ and $-\frac{1}{2}$ 3) $-\sqrt{2}$ and 1 4) none of these
6. Let $T : \mathbb{R}^2 \rightarrow \mathbb{R}^3$ be a linear transformation given by $T(x_1, x_2) = (x_1 + x_2, x_1 - x_2, x_2)$, then rank of T is :
 1) 0 2) 2 3) 1 4) 3
7. A survey shows that 63% of the Americans like cheese and 76% like apples. If $x\%$ of the Americans like both cheese and apples, then :
 1) $x = 39$ 2) $39 \leq x \leq 63$ 3) $x = 63$ 4) none of these
8. If V and U are vector spaces of dimensions 4 and 6 respectively, then $\dim \operatorname{hom}(V, U)$ is :
 1) 4 2) 6 3) 10 4) 24

9. Equations of the straight lines touching both $x^2 + y^2 = 2a^2$ and $y^2 = 8ax$ are :
 1) $x \pm y \pm 2a = 0$ 2) $x - y \pm 2a = 0$ 3) $x \pm y + 2a = 0$ 4) None of these
10. Let G be a group of order 15. Then the number of sylow subgroups of G of order 3 is :
 1) 0 2) 1 3) 3 4) 5
11. If x, y, z are in AP with common difference d and rank of the matrix $\begin{bmatrix} 4 & 5 & x \\ 5 & 6 & y \\ 6 & k & z \end{bmatrix}$ is 2, then values of d and k are :
 1) $d = x/4; k = 7$ 2) d is arbitrary; $k = 7$ 3) $d = 5; k = 5$ 4) none of these
12. The system of equations $k \cdot x + y + z = 1, x + k \cdot y + z = k$ and $x + y + k \cdot z = k^3$ does not have a common solution if k is equal to :
 1) 0 2) 1 3) -1 4) -2
13. For which value of λ does the line $y = x + \lambda$ touch the ellipse $9x^2 + 16y = 144$?
 1) $\lambda = \pm 5$ 2) $\lambda = 5$ 3) $\lambda = -5$ 4) $\lambda = 1$
14. The minimal polynomial of the 3×3 real matrix $\begin{bmatrix} a & 0 & 0 \\ 0 & a & 0 \\ 0 & 0 & b \end{bmatrix}$ is :
 1) $(x - a)(x - b)$ 2) $(x - a)^2(x - b)$ 3) $(x - a)(x - b)^2$ 4) none of these
15. Equation of a parabola with vertex at origin, symmetric about y -axis and passes through a point $(2, -3)$ is :
 1) $y^2 = \frac{9}{2}x$ 2) $x^2 = -\frac{4}{3}y$ 3) $x^2 + y^2 = 13$ 4) none of these
16. If $f(x) = \begin{cases} 1, & \text{if } x \text{ is a rational number} \\ 0, & \text{if } x \text{ is an irrational number} \end{cases}$; then what is the value of $f \circ f(\sqrt{3})$?
 1) 0 2) 1 3) both 0 and 1 4) none of these

17. How many elements of order 2 are there in a group of order 4?
 1) 1 2) 2 3) 3 4) can't say
18. Which of the following matrix is not diagonalizable?
 1) $\begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$ 2) $\begin{bmatrix} 1 & 0 \\ 3 & 2 \end{bmatrix}$ 3) $\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$ 4) $\begin{bmatrix} 1 & 1 \\ 1 & 2 \end{bmatrix}$
19. The least upper bound of any subset of the set of rational numbers is always :
 1) a rational number 2) a real number 3) a positive number 4) an irrational number
20. Value of $\lim_{n \rightarrow \infty} \frac{1}{n} [1 + 2^{\frac{1}{2}} + 3^{\frac{1}{3}} + \dots + n^{\frac{1}{n}}]$ is equal to :
 1) 0 2) e 3) 1 4) $1/e$
21. How many proper normal subgroups are possible for a group of order 112?
 1) 0 2) 5 3) 10 4) 16
22. Let $G = \mathbb{Z}_4 \times \mathbb{Z}_6$ be a group and H be a subgroup of G generated by (0, 1). Then order of G/H is :
 1) 1 2) 2 3) 3 4) 4
23. Every group G is isomorphic to a permutation group; this statement is :
 1) Cayley's theorem 2) Lagrange's theorem 3) Liouville's theorem 4) none of these
24. Every group of prime order is :
 1) a field 2) abelian 3) cyclic 4) none of these
25. Let $T : \mathbb{R}^4 \rightarrow \mathbb{R}^4$ be defined as $T(x, y, z, t) = (x + y + 5t, x + 2y + t, -z + 2t, 5x + y + 2z)$.
 Then dimension of the eigen space of T is :
 1) 1 2) 2 3) 3 4) 4

26. The order of 2 in the field \mathbb{Z}_{29} is :
 1) 2 2) 14 3) 28 4) 29
27. Let R be a commutative ring with unity of characteristic 3. For $a, b \in R$, $(a + b)^6$ is equal to :
 1) $a^6 + b^6$ 2) $a^6 - a^3b^3 + b^6$ 3) $a^6 + a^3b^3 + b^6$ 4) none of these
28. Let $f(x) = x^2 + 1$, $g(x) = x^3 + x^2 + 1$ and $h(x) = x^4 + x^2 + 1$ then :
 1) $f(x)$ and $g(x)$ are irreducible over \mathbb{Z}_2 2) $g(x)$ and $h(x)$ are irreducible over \mathbb{Z}_2
 3) $f(x)$ and $h(x)$ are irreducible over \mathbb{Z}_2 4) $f(x)$, $g(x)$ and $h(x)$ are irreducible over \mathbb{Z}_2
29. Let F be a field of order 2^n . Then :
 1) Char F = 0 2) Char F = a prime number 3) Char F = 2 4) none of these
30. If $\mathbb{Z}[i]$ is the ring of Gaussian integers, then the quotient $\mathbb{Z}[i]/\langle 3 - i \rangle$ is isomorphic to :
 1) \mathbb{Z} 2) $\mathbb{Z}/3\mathbb{Z}$ 3) $\mathbb{Z}/4\mathbb{Z}$ 4) $\mathbb{Z}/10\mathbb{Z}$
31. The ring $\mathbb{Z}[\sqrt{-11}]$ is a :
 1) Euclidean Domain 2) PID but not Euclidean Domain
 3) UFD but not PID 4) not a UFD
32. The order of normalizer of $\sigma = (12)(34)$ in S_6 is :
 1) 8 2) 16 3) 24 4) 4
33. Let A be a square matrix of order n , then nullity of A is :
 1) $n - \text{rank } A$ 2) $\text{rank } A - n$ 3) $n + \text{rank } A$ 4) none of these
34. If $n(A) = 115$, $n(B) = 326$, $n(A - B) = 47$, then the value of $n(A \cup B)$ equal to :
 1) 373 2) 165 3) 370 4) 394

35. Let $T : \mathbb{R}^3 \rightarrow \mathbb{R}^2$ be a linear transformation given by $T(x_1, x_2, x_3) = (x_1 + x_2, x_1 - x_3)$, then dimension of null space of T is :
- 1) 0 2) 1 3) 2 4) 3
36. If $X = \{4^n - 3n - 1 : n \in \mathbb{N}\}$ and $Y = \{9(n - 1) : n \in \mathbb{N}\}$ then $X \cup Y$ is equal to :
- 1) X 2) Y 3) \mathbb{N} 4) none of these
37. Which one of the following functions $f: \mathbb{R} \rightarrow \mathbb{R}$ is injective ?
- 1) $f(x) = |x|$ 2) $f(x) = x^2$ 3) $f(x) = 16$ 4) $f(x) = -x$
38. Points $(a + 5, a - 4)$, $(a - 2, a + 3)$ and (a, a) are not collinear only when a is :
- 1) 3 2) 4 3) any real number 4) 5
39. Matrix $A = \begin{bmatrix} -1 & 3 & 5 \\ 1 & -3 & -5 \\ -1 & 3 & 5 \end{bmatrix}$ is :
- 1) involutory 2) nilpotent 3) idempotent 4) none of these
40. The point where the line $y = x + 1$ is a tangent to the curve $y^2 = 4x$ is :
- 1) (2, 1) 2) (2, 2) 3) (1, 1) 4) (1, 2)
41. If $f(x) = e^x$ then $f^{-1}(e)$ is equal to :
- 1) 1 2) e 3) 0 4) $1/e$
42. The unit normal vector to the level surface $x^2 + y - z = 4$ at the point $(-3, 1, 6)$ is :
- 1) $(-6i + j - k)$ 2) $\frac{1}{\sqrt{38}}(-6i + j - k)$ 3) $\frac{1}{\sqrt{38}}(-9i + j - k)$ 4) none of these
43. The function $y = f(x)$ has a (relative) minimum where :
- 1) $f(x) = 0$ and $f'(x) < 0$ 2) $f'(x) = 0$ and $f''(x) < 0$
 3) $f(x) = 0$ and $f'(x) > 0$ 4) $f'(x) = 0$ and $f''(x) > 0$

44. Derivative of y^x with respect to x is :
- 1) y^x 2) $\log y$ 3) $y^x \log y$ 4) $x y^{x-1}$
45. $\vec{V} \cdot (\vec{V} \times \vec{V})$ will be equal to :
- 1) 0 2) $\vec{V} \cdot (\vec{V} \cdot \vec{V})$ 3) $\nabla^2 \vec{V}$ 4) none of these
46. How many epimorphisms are possible from \mathbb{Z}_{12} to \mathbb{Z}_6 ?
- 1) 0 2) 6 3) 4 4) 2
47. For any real number x the value of $\lim_{n \rightarrow \infty} \frac{x^n}{n!}$ is equal to :
- 1) 1 2) 0 3) e 4) none of these
48. Value of the $\lim_{n \rightarrow \infty} (n)^{\frac{1}{n}}$ is :
- 1) 1 2) e 3) $1/e$ 4) 0
49. The sequence $\langle x_n \rangle = 1 + \frac{1}{2} + \frac{1}{3} + \dots + \frac{1}{n}$ is :
- 1) convergent 2) monotonically decreasing
3) not convergent 4) none of these
50. The series $\sum \frac{\sqrt{n}}{n^2+1}$ is :
- 1) convergent 2) divergent 3) not convergent 4) none of these
51. The series $x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} \dots$ is convergent for :
- 1) all real x 2) $|x| < 1$ 3) $|x| \leq 1$ 4) $-1 < x \leq 1$
52. The limit, $\lim_{x \rightarrow 0} [x]$; where $[x]$ is the greatest integer less than or equal to x is :
- 1) positive 2) zero 3) not unique 4) negative

53. Let $\{x_n\}$ be a sequence of positive terms, such that $\lim_{n \rightarrow \infty} \frac{x_{n+1}}{x_n}$ exists, then :
- 1) $\lim_{n \rightarrow \infty} (x_n)^{\frac{1}{n}}$ exists 2) $\lim_{n \rightarrow \infty} (x_n)^{\frac{1}{n}}$ may exist
3) $\lim_{n \rightarrow \infty} (x_n)^{\frac{1}{n}}$ does not exist 4) none of these
54. The domain for the convergence of the series $1 + x + x^2 + x^3 + \dots$ is:
- 1) $[-1, 1]$ 2) $(-1, 1]$ 3) $(-1, 1)$ 4) none of these
55. The function $f(x) = -2x^3 - 9x^2 - 12x + 1$ is increasing in the interval :
- 1) $(-\infty, -2) \cup (-1, \infty)$ 2) $(-2, 1)$ 3) $(1, 2)$ 4) $(-2, -1)$
56. The function $f(x) = |x + 2|$ is not differentiable at :
- 1) $x = 2$ 2) $x = -2$ 3) $x = \pm 2$ 4) $x = 0$
57. The value of $\lim_{x \rightarrow \infty} [\sqrt{x^2 + 1} - x]$ is :
- 1) ∞ 2) 1 3) 0 4) does not exist
58. If $f(x) = \sqrt{x^2 - 4}$ in $[2, 4]$ satisfies the Lagrange's mean value theorem, then there exists some $c \in (2, 4)$. What is the value of that c ?
- 1) 12 2) 6 3) $\sqrt{2}$ 4) $\sqrt{6}$
59. Which of the following functions is not uniformly continuous in $[2, \infty)$?
- 1) $\frac{1}{x}$ 2) e^x 3) $\frac{1}{x^2}$ 4) $\sin x$
60. Let $X = (0, 1) \cup (2, 3)$ and f be a continuous function on X such that the derivative $f'(x) = 0$ for all x . Then range of f has :
- 1) uncountable number of points 2) countably finite number of points
3) at most 2 points 4) at most 1 point

61. The value of $\lim_{x \rightarrow a} \frac{\sin(a-x)}{a(a-x)}$ is :
- 1) a 2) $\sin a$ 3) $1/a$ 4) does not exist
62. If $f: [a, b] \rightarrow \mathbb{R}$ is strictly increasing, then :
- 1) f^{-1} does not exist 2) f^{-1} is strictly decreasing
 3) f^{-1} is not monotonic 4) f^{-1} exists on $\text{Im}g, f$
63. Let $f(x) = ax + b$ be a monotonic function on \mathbb{R} and satisfies condition $f(x) = f^{-1}(x)$, then values of a and b are :
- 1) $a = 2, b = -1$ 2) $a = -1, b \in \mathbb{R}$ 3) $a = 1, b \in \mathbb{R}$ 4) $a = 1, b = -1$
64. The function $f(x) = \frac{|x|}{x}; x \neq 0$ may be made continuous at origin if :
- 1) $f(0) = 0$ 2) $f(0) = -1$
 3) $f(0) = \infty$ 4) cannot be made continuous for any value of $f(0)$
65. Range of the function $f(x) = x^2 + x - 6$ is :
- 1) $[-6.25, \infty)$ 2) $(-6.25, \infty)$ 3) $(6.25, \infty)$ 4) $(-\infty, 6.25)$
66. Which of the following series is absolutely convergent?
- 1) $\sum \frac{(-1)^n}{n}$ 2) $\sum \frac{1}{\sqrt{n}}$ 3) $\sum \frac{1}{\log(n+1)}$ 4) $\sum \frac{(-1)^n}{n^{3/2}}$
67. If $f: A \rightarrow B, g: B \rightarrow C$ are two functions such that $g \circ f: A \rightarrow C$ is onto then :
- 1) $g: B \rightarrow C$ is onto 2) $f: A \rightarrow B$ is onto 3) both f and g are onto 4) none of these
68. The value of k for which the function $f(x) = \begin{cases} \frac{1 - \cos 4x}{8x^2}, & x \neq 0 \\ k, & x = 0 \end{cases}$ is continuous at $x = 0$ is :
- 1) 0 2) 1 3) infinity 4) none of these

69. The set of points where $f(x) = |\sin x|$ is not differentiable is :
- 1) empty 2) $\{0\}$ 3) $\{k \cdot \pi/2 : k \in \mathbb{Z}\}$ 4) $\{k \cdot \pi : k \in \mathbb{Z}\}$
70. Area enclosed by the curve $r = 2a \cos \theta$, $0 \leq \theta \leq \frac{\pi}{2}$ is :
- 1) πa^2 2) $2\pi a^2$ 3) $\frac{\pi a^2}{2}$ 4) none of these
71. Integral $\int_0^{\infty} \frac{dx}{\sqrt{x} e^{\sqrt{x}}}$ is equal to :
- 1) 1 2) -2 3) 2 4) $2/e$
72. If $f(x) = \int_0^{x^2} \sqrt{\sin t + \cos t} dt$, then derivative of $f(x)$ w.r.t. x is :
- 1) $2x \sqrt{\sin x^2 + \cos x^2}$ 2) $\sqrt{\sin x^2 + \cos x^2}$ 3) $x \sqrt{\sin x^2 + \cos x^2}$ 4) none of these
73. Let $I = \int_0^{\pi/6} \sin^2 t \cos^2 t dt$, then :
- 1) $I = \frac{\pi}{48}$ 2) $I < \frac{\pi}{48}$ 3) $I > \frac{\pi}{48}$ 4) none of these
74. The perimeter of the curve $r = 2 \cos \theta$ is :
- 1) $\pi/2$ 2) π 3) $3\pi/2$ 4) 2π
75. Which of the following is correct?
- 1) $\int_0^{\infty} e^{-x} dx$ is not convergent 2) $\int_0^{\infty} e^{-x^2} dx$ is not convergent
- 3) $\int_{-\infty}^0 e^x dx$ is convergent 4) $\int_0^{\infty} e^{-x^2} dx$ is divergent
76. Consider the function f defined on $[-1, 1]$ as $f(x) = \begin{cases} k, & x \neq 0 \\ 0, & x = 0 \end{cases}$ then :
- 1) f is not Riemann integrable 2) f is Riemann integrable
- 3) $\int_0^1 f(x) dx = 0$ 4) $\int_0^1 f(x) dx = 3k$

77. The integral $\int_0^1 x^{m-1}(1-x)^{n-1}dx$ exists :
- 1) when $m > 0, n < 0$ 2) when $m < 0, n < 0$ 3) when $m > 0, n > 0$ 4) when $m = n = 0$
78. Radius of convergence of the power series $\sum \frac{x^n}{n}$ is :
- 1) 1 2) 2 3) 3 4) none of these
79. Which one of the following series is uniformly convergent for all real x ?
- 1) $\sum \frac{\sin nx}{n}$ 2) $\sum \frac{\sin nx}{n^{2/3}}$ 3) $\sum \frac{\sin nx}{n^{1/4}}$ 4) none of these
80. If $f(x, y) = \begin{cases} xy \sin \left(\frac{1}{x}\right), & x \neq 0 \\ 0, & x = 0 \end{cases}$ then :
- 1) $f_x(0, 0) = 1 = f_y(0, 0)$ 2) $f_x(0, 0) = 0 = f_y(0, 0)$.
3) $f_x(0, 0) \neq f_y(0, 0)$ 4) none of these
81. If $f(x, y) = \frac{xy}{\sqrt{x^2+y^2}}$, $(x, y) \neq 0$ and $f(x, y) = 0$ for $(x, y) = (0, 0)$ then :
- 1) $f(x, y)$ is discontinuous at $(0, 0)$ 2) $f(x, y)$ is continuous at $(0, 0)$
3) $f_x(0, 0) = 1$ 4) $f_y(0, 0) = 1$
82. What is the positive value of m for which the coefficient of x^2 in $(1+x)^m$ is 6?
- 1) 5 2) 6 3) 7 4) 4
83. Value of the integral $\int \tan x dx$ is :
- 1) $\sec^2 x + c$ 2) $\cot x + c$ 3) $-\log |\cos x| + c$ 4) none of these
84. If $y = 3$ when $x = 3$, and $\frac{dy}{dx} = \frac{2x}{y^2}$, then value of y at $x = 1$ will be :
- 1) 1 2) $\sqrt[3]{12}$ 3) $\sqrt[3]{9}$ 4) $\sqrt[3]{3}$

85. A bag has 8 red balls and 5 white balls. Three balls are drawn at random. Find the probability that the balls drawn are two red and one white.
- 1) $\frac{C_2^8 \times C_1^5}{C_3^{13}}$ 2) $\frac{C_2^8 + C_1^5}{C_3^{13}}$ 3) $\frac{C_3^8 \times C_3^5}{C_3^{13}}$ 4) none of these
86. If slope of the tangent to a curve $y = f(x)$ at any point (x, y) is given by the equation $\frac{dy}{dx} = (x-1)(x-2)^2(x-3)^3(x-4)^4$ then y will have a local maxima at :
- 1) $x = 1$ and 3 2) $x = 1$ 3) $x = 2$ and 4 4) $x = 1, 2, 3$ and 4
87. Value of the integral $\int_C (x dx + xy dy)$ over a line C from $(1, 0)$ to $(0, 1)$ is :
- 1) $\frac{1}{6}$ 2) $\frac{1}{2}$ 3) $-\frac{1}{6}$ 4) $-\frac{3}{4}$
88. Value of the integral $\iint_C x^2 y^2$ over the domain $C = \{(x, y) : x \geq 0, y \geq 0, x^2 + y^2 \leq 1\}$ is :
- 1) $\frac{\pi}{96}$ 2) $\frac{\pi}{24}$ 3) $\frac{\pi}{16}$ 4) $\frac{\pi}{4}$
89. If $f(x, y, z) = 3x^2y - y^3z^2$, then the grad f at $(1, -2, -1)$ is :
- 1) $-12\hat{i} - 9\hat{j} - 16\hat{k}$ 2) $12\hat{i} - 9\hat{j} + 16\hat{k}$ 3) $12\hat{i} + 9\hat{j} + 16\hat{k}$ 4) none of these
90. The directional derivative of $f(x, y, z) = xy^2 + yz^3$ at point $(2, -1, 1)$ in the direction of the vector $\hat{i} + 2\hat{j} + 2\hat{k}$ is :
- 1) $\frac{13}{3}$ 2) $\frac{11}{3}$ 3) $\frac{3}{11}$ 4) none of these
91. Divergence of the 3-dimensional radial vector field \vec{r} is :
- 1) $3\hat{i}$ 2) 3 3) $3\hat{i} + \hat{j} + \hat{k}$ 4) 1
92. The vector field $\vec{F} = x\hat{i} - y\hat{j}$ is :
- 1) divergence free but not irrotational 2) irrotational but not divergence free
3) divergence free and irrotational 4) neither divergence free nor irrotational

93. Stoke's theorem connects :
- 1) line integral and surface integral 2) surface integral and volume integral
3) line integral and volume integral 4) none of these
94. Area of a triangle formed by the tips of the vectors \vec{a} , \vec{b} and \vec{c} is :
- 1) $\frac{1}{2}(\vec{a}-\vec{b})\cdot(\vec{a}-\vec{c})$ 2) $\frac{1}{2}|(\vec{a}-\vec{b})\times(\vec{a}-\vec{c})|$ 3) $\frac{1}{2}|(\vec{a}\times\vec{b}\times\vec{c})|$ 4) none of these
95. An integrating factor of $x\frac{dy}{dx} + (3x+1)y = xe^{-2x}$ is :
- 1) xe^{3x} 2) $3xe^x$ 3) xe^x 4) x^3e^x
96. General solution of the differential equation $4x^2y'' - 8xy' + 9y = 0$ is :
- 1) $c_1 e^{5x/2} + c_2 e^{-3x/2}$ 2) $c_1 e^{3x/2} + c_2 e^{-3x/2}$ 3) $(c_1 + c_2 \log x) x^{3/2}$ 4) none of these
97. Solution of the differential equation $y'' + 4y = 0$ subject to $y(0) = 1, y'(0) = 2$ is :
- 1) $\sin 2x + 1$ 2) $\cos 2x + 2x$ 3) $\cos 2x - \sin 2x$ 4) $\cos 2x + \sin 2x$
98. If $\phi(x, y) = 0$ is a singular solution, then $\phi(x, y)$ is a factor of :
- 1) p -discriminant only 2) c -discriminant only
3) both p and c -discriminants 4) none of these
99. For a complex number z , the minimum value of $|z| + |z - \cos\alpha - i \sin\alpha|$ is :
- 1) 2 2) 1 3) 0 4) 3
100. Let z be a complex number such that $|z| = 4$ and $\arg(z) = \frac{5\pi}{6}$, then z is :
- 1) $-\sqrt{3} + i$ 2) $2\sqrt{3} + 2i$ 3) $2\sqrt{3} - 2i$ 4) $-2\sqrt{3} + 2i$

**Key for TGT, Paper-II: Mathematics (21.2.2015(Evening) T-2/6
'A' Series**

Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.
1	1	26	3	51	4	76	2
2	4	27	1	52	3	77	3
3	3	28	2	53	1	78	1
4	4	29	3	54	3	79	1
5	3	30	4	55	4	80	2
6	2	31	2	56	2	81	2
7	2	32	2	57	3	82	4
8	4	33	1	58	4	83	3
9	3	34	1	59	2	84	4
10	2	35	2	60	3	85	1
11	1	36	2	61	3	86	2
12	4	37	4	62	4	87	3
13	1	38	3	63	2	88	1
14	1	39	3	64	4	89	1
15	2	40	4	65	1	90	4
16	2	41	1	66	4	91	2
17	4	42	2	67	1	92	3
18	1	43	4	68	2	93	1
19	2	44	3	69	4	94	2
20	3	45	1	70	3	95	1
21	1	46	4	71	3	96	3
22	4	47	2	72	1	97	4
23	1	48	1	73	2	98	3
24	3	49	3	74	4	99	2
25	4	50	1	75	3	100	4

