

## ECAT Mathematics Online Test

| Sr | Questions  | Answers Choice  |
|----|--|---|
| 1  | The equation of the plane which bisects the line joining (2, 3, 4) and (6, 7, 8) is  | <p>A. <math>x + y + z - 15 = 0</math></p> <p>B. <math>x - y + z - 15 = 0</math></p> <p>C. <math>x - y - z - 15 = 0</math></p> <p>D. <math>x + y + z + 15 = 0</math></p>   |
| 2  | The distance of the plane $2x - 3y + 6z + 14 = 0$ from the origin is   | <p>A. 14</p> <p>B. 2</p> <p>C. -2</p> <p>D. 11</p>  |
| 3  | The point which divides the line joining the points (2, 4, 5) and (3, 5, -4) in the ratio -2 : 3 lines on                    | <p>A. ZOZ plane</p> <p>B. XOY plane</p> <p>C. YOZ plane</p> <p>D. None of these</p>   |
| 4  | Question Image <input type="text"/>  | <p>A. 0</p> <p>B. 2</p> <p>C. 4/3</p> <p>D. 5/3</p>   |
| 5  | The projections of a line segment on x, y, z axes are 12, 4, 3. The length and the direction cosines of the line segment are |   |
| 6  | The st. lines whose direction cosines satisfy $al + bm + cn = 0$ , $fmn + gnl + hlm = 0$ are perpendicular if                |   |
| 7  | Question Image <input type="text"/>  | <p>A. (3, 1, -2)</p> <p>B. (3, -2, 1)</p> <p>C. (2, -1, 3)</p> <p>D. (-1, -2, -3)</p>   |
| 8  | The distance of the points (3, 4, 5) from y-axis is  |   |
| 9  | The direction cosines of any normal to the xy-plane are  | <p>A. <math>\langle 1, 0, 0 \rangle</math></p> <p>B. <math>\langle 0, 1, 0 \rangle</math></p> <p>C. <math>\langle 1, 1, 0 \rangle</math></p> <p>D. <math>\langle 0, 0, 1 \rangle</math></p>                             |
| 10 | The direction cosines of a line equally inclined with co-ordinate axes are   |   |
| 11 | The points (5, 2, 4), (6, -1, 2) and (8, -7, k) are collinear if k is equal to   | <p>A. -2</p> <p>B. 2</p> <p>C. 3</p> <p>D. -1</p>   |
| 12 | If l, m, n are the d.c.'s of a line, then  | <p>A. <math>l^2 + m^2 + n^2 = 0</math></p> <p>B. <math>l^2 + m^2 + n^2 = 1</math></p> <p>C. <math>l + m + n = 1</math></p> <p>D. <math>l = m = n = 1</math></p>   |
| 13 | Which of the following integrals can be evaluated  |   |
| 14 | Question Image <input type="text"/>  |   |
| 15 | Question Image <input type="text"/>  | <p>A. <math>\int \frac{1}{\sqrt{1-x^2}} dx</math></p> <p>B. <math>\int \frac{1}{\sqrt{1+x^2}} dx</math></p> <p>C. <math>\int \frac{1}{\sqrt{1-x^2}} dx</math></p> <p>D. <math>\int \frac{1}{\sqrt{1+x^2}} dx</math></p> |

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|    |   |  |
|----|---|--|
| 16 | Question Image  | A. 0<br>B. 1<br>C. 2<br>D. 4   |
| 17 | Question Image  | A. Always negative<br>B. Zero<br>C. Always positive<br>D. Infinity                                   |
| 18 | If the graph of $f$ is entirely below the $x$ -axis, then the value of definite integral is                             | A. = 0<br>B. $<math>\leq 0</math>C. > 0D. None$  |
| 19 | If the lower limit of an integral is a constant and the upper limit is a variable, then the integral is a               | A. Constant function<br>B. Variable value<br>C. Function of upper limit<br>D. All                    |
| 20 | The arbitrary constants involving in the solution can be determined by the given conditions. Such conditions are called | A. Boundaries<br>B. Variable separable<br>C. Initial values<br>D. None                               |
| 21 | Question Image  | A. $Y = -x \log x - x + c$<br>B. $Y = x \log x + x$<br>C. $Y = x \log x - x + c$<br>D. None of these |
| 22 | Question Image  |  |
| 23 | Question Image  |  |
| 24 | Question Image  | A. $X = 100 \sin \theta$<br>B. $X = 10 \sin \theta$<br>C. $X = 100 \sec \theta$<br>D. None of these  |
| 25 | Question Image  | A. A variable<br>B. A constant<br>C. 0<br>D. None of these   |
| 26 | Question Image  |  |
| 27 | Question Image  |  |
| 28 | Which of the following integrals can be evaluated   |  |
| 29 | Question Image  |  |
| 30 | Question Image  |  |