Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 18

B.Tech.(3D Animation & Graphics)(CSE/IT) (2012 Onwards)
(Sem.–3)

MATHEMATICS – III

Subject Code : BTAM-302
Paper ID : [A2143]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1. What do you mean by unit step function?
2. Find fourier cosine series of $f(x) = 1$, $0 \le x \le 2$.
3. What does the constant term a_o represent in fourier series?
4. Eliminate h, k from $(x - h)^2 + (y - k)^2 + z^2 = a^2$.
5. Discuss analyticity of function $f(z) = z\bar{z}$.
6. A bag contains 2 white and 3 red balls and bag Y contains 4 white and 5 red balls. One ball is drawn from bag and found red. Find the probability that it drawn from bag Y.
7. Define critical region.
8. Define alternate hypothesis.
9. In normal distribution, 31% of items are under 45 and 8% are over 64. Find the mean and standard deviation of distribution.
10. Six dice are drawn 729 times. How many times do you expect atleast three dice to show 5 or 6?

SECTION-B

11. Find the laplace transform of $\left(\frac{1-cost}{t^2}\right)$.

12. Solve $(D^2 - D'^2 - 3D + 3D')z = xy + e^{x+2y}$

13. The theory predicts the proportion of beans in four groups should be in ratio 9:3:3:1.In an experiment with 1600 beans the numbers in the four groups were 882, 313, 287 and 118. Does the experimental result support the theory?

14. Using gauss elimination method solve :

$3x + y - z = 3$

$2x - 8y + z = -5$

$x - 2y + 9z = 8.$

15. Using Euler method solve for y at x=0.1for $\frac{dy}{dx} = x + y + xy$, $y(0) = 1$. Take step size h=0.025.

SECTION-C

16. Find the moment generating function of Normal distribution.

17. Find fourier series expansion of periodic function of period 4

$$f(x) = \begin{cases} 2+x & -2 \le x \le 0 \\ 2-x & 0 < x \le 2. \end{cases}$$

18. If $f(z) = u + iv$ is analytic function of $z = x + iy$ and $u - v = e^{-x}[(x - y)siny - (x + y)cosy]$. Find u, v and the analytic function $f(z)$.