AE56/AC56/AT56

ENGINEERING MATHEMATICS-II

StudentBounts.com a. Show that the function $f(z) = \sqrt{|xy|}$ is not analytic at the origin even Q.2 though Cauchy-Riemann equations are satisfied thereof.

Answer: Page Number 742 of Text Book I

a. Find Laurent's series expansion of $\frac{z^2-1}{z^2+5z+6}$ about z=0 in the **Q.3**

region 2 < |z| < 3.

Answer: Page Number 778 of Text Book I

b. Use Residue theorem to evaluate
$$\int_{C} \frac{1-2z}{z(z-1)(z-2)} dz, C: |z| = 1.5$$

Answer: Page Number 784 of Text Book I

a. If $u = x^2 + y^2 + z^2$ and V = xI + yJ + zK, show that div(uV) = 5u0.4 Answer: Page Number 363 of Text Book I

> b. Find the angle between the normals to the surface $xy = z^2$ at the points (4, 1, 2) and (3,3,-3).

Answer: Page Number 354 of Text Book I

a. Apply Green's theorem to evaluate $\int_{-\infty}^{\infty} \left[(3x - 8y^2) dx + (4y - 6xy) dy \right]$ Q.5

Where C is the boundary of the region bounded by x=0, y=0, x+y=1Answer: Page Number 371 of Text Book I

Q.6 a. Use Newton's divided difference formula to evaluate f(8) given that

f(x) 48 100 294 900 1210 2028	Х	4	5	7	10	11	13
	f(x)	48	100	294	900	1210	2028

Answer: Page Number 1068 of Text Book I

b. Find an approximate value of $\log_e 5$ by calculating to four decimal places,

by Simpson's $\frac{1}{3}$ rd rule, $\int_{-\infty}^{5} \frac{dx}{4x+5}$ dividing the range into ten equal parts.

Answer: Page Number 1302 of Text Book II

a. Apply Charpit's method to solve $(a^2 + b^2)y = bz$. **Q.7** Answer: Page Number 644 of Text Book I

www.StudentBounty.com

AE56/AC56/AT56

StudentBounty.com b. Use method of separation of variables to solve $\frac{\partial u}{\partial x} = 4 \frac{\partial u}{\partial y}$, given that

$$\mathbf{u}(0,\mathbf{y}) = 8\mathrm{e}^{-3\mathrm{y}}.$$

Answer: Page Number 658 of Text Book I

- a. A committee consists of 9 students two of which are from 1^{st} year, three from 2^{nd} year and four from 3^{rd} year. Three students are to be removed at **Q.8** random. What is the chance that
 - (i) the three students belong to different classes.
 - (ii) two belong to the same class and third to the different class.

Answer: Page Number 940-941 of Text Book I

b. In a certain college, 4% of the boys and 1% of girls are taller than 1.8m. Moreover 60% of the students are girls. If a student is selected at random and is found to be taller than 1.8m, what is the probability that the student is a girl?

Answer: Page Number 952 of Text Book I

0.9 a. Fit a Poisson distribution to the set of observations:

Х	0	1	2	3	4
f	122	60	15	2	1

Answer: Page Number 966 of Text Book I

b. Assuming that the diameters of 1000 brass plugs taken consecutively from a machine, form a normal distribution with mean 0.7515 cm and standard deviation 0.0020 cm, how many of the plugs are likely to be rejected if the approved diameter is 0.752 ± 0.004 cm? (Given: if z is the normal variable, then area under normal curve for $0 \le z \le 1.75$ is 0.4599 and for $0 \le z \le 2.25$ is 0.4878.)

Answer: Page Number 975 of Text Book I

Text Book

1. Higher Engineering Mathematics -Dr. B.S.Grewal, 40th Edition 2007, Khanna Publishers, Delhi.

2. A Text book of engineering Mathematics – N.P. Bali and Manish Goyal, 7th Edition 2007, Laxmi Publication(P) Ltd.