

GOVERNMENT COLLEGE OF ENGINEERING, AMRAVATI

CLASS TEST NO.2 Winter-2015

SHU304, ENGINEERING MATHEMATICS-III
CLASS: B.Tech second Year (CS,IT)

Date:21/09/2015

Max Marks:15

Que 1: Attempt any four of the following:

a) Solve : $(z^2 - 2yz - y^2)p + (xy + xz)q = xy - xz$ (12)

b) Solve : $z^2(p^2x^2 + q^2) = 1$

c) Solve : $(pq - p - q)(z - px - qy) = pq$

d) Solve the equation $\frac{\partial^2 z}{\partial x \partial y} = \sin x \sin y$ for which $\frac{\partial z}{\partial y} = -2 \sin y$, when $x = 0$ and $z = 0$ when y is odd multiple of $\frac{\pi}{2}$.

e) Find Laplace transform of $f(t) = \begin{cases} 1, & 0 \leq t < 1 \\ t, & 1 \leq t < 2 \\ t^2, & 2 \leq t < \infty \end{cases}$

Que 2: Fill in the blanks

(03)

a) If $f(t) = t^2 e^{-t} \sin t$, the Laplace transform of $f(t)$ will be-----

b) If $f(t) = \frac{\cos 6t - \cos 4t}{t}$, the Laplace transform of $f(t)$ will be-----

$$u_{xyy} = pq + 2px^2y + 2qny^2$$

$$2xp^2 + 2xq^2$$

$$p = yP + Q$$

$$q = xP + a$$

$$u_y = \frac{(yP+Q)(xP+Q) + 2xyP^2}{xy} + 2x^2P^2 + 14$$

$$u_y = \frac{pq}{xy} + 2px + 2qy$$

GOVERNMENT COLLEGE OF ENGINEERING.
(An autonomous institute of Govt. of Maharashtra)

CT-II W-2014 MARKS-15 TIME-1 HOUR
SHU301, SHU303, SU304 ENGG.MATHS-III [Civil/Mech/ELPO/EXTC/CS/IN/IT]

$$dt + dx$$

$$t + 2$$

$$2 - a^2 t^2 - t - a^2 z t^2$$

Q.1 Solve by using the Separation of variables method

$$u_{xx} = u_y + 2u, \quad u(0, y) = 0, \quad \frac{\partial}{\partial x} u(0, y) = 1 + e^{-3y}$$

Q.2 Solve $(z - xp - yq)^{\frac{1}{2}} = a(x^2 + y^2 + z^2)$

Q.3 ATTEMPT ANY THREE

(A) Solve $pq = x^m y^n z^2$ 3

(B) Solve $2x^{\frac{1}{2}} y^{\frac{1}{2}} z^{\frac{1}{2}} = (pq + 2px^2y + 2qxy^2)^{\frac{1}{2}}$

(C) Solve $(x+y)(p+q)^2 + (x-y)(p-q)^2 = 1$ 3

(D) Solve $yp = 2yx + \log q$ 3

Que5) Evaluate:

$$\text{i) } \int_{-\infty}^{\infty} \left| \frac{e^{-t} - e^{-3t}}{t} \right| dt$$

$$\text{ii) } \int_{-\infty}^{\infty} \frac{e^{-2t} \sinh t}{t} dt$$

$$\begin{aligned} c_1 c_3 e^{(f-2)y} &= -c_2 c_3 e^y \\ (-c_2 c_3 e^{(f-2)y}) - (3c_2 c_3 e^{-3y}) &= 1 + e^{-3y} \\ (-c_2 c_3 e^{(f-2)y}) &\cancel{= -c_2 c_3 e^{-3y}} \end{aligned}$$

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CT-II

W-2015

MARKS-15

TIME-1 HOUR

SHU303 ENGG. MATHS-III [ELPO/EXTC /IN]

Q.1 Solve by using the Separation of variables method

$$u_{xx} - 2u = u_y, \quad u(0, y) = 0 \quad \frac{\partial}{\partial x} u(0, y) = 1 + e^{-3y}$$

Q.2 Solve $p = \sqrt{\frac{1 - y^2(p^2 + q^2)}{x^2}} - q^2$

Q. 3 ATTEMPT ANY THREE

(A) Solve $p(1 + q^2) = q(z - a)$

(B) Solve $x = \frac{4xyz - pq}{2y(px + qy)}$

(C) Solve $(x^2 - y^2 - z^2)p = 2x(z - yq)$

(D) Solve $yp = 2yx + \log q$

$$\left\{ \begin{array}{l} e^{an} \\ e^{an} \\ \frac{e^{an}}{a} \end{array} \right.$$

$$\left\{ \begin{array}{l} e^{an} \\ \frac{1}{a} \\ e^{an} \end{array} \right.$$

$$\frac{1}{1 + y^2/x^2} \cdot \frac{1}{z^2}$$

$$\sqrt{xy}$$

$$x^2 = 14/m$$

$$x^2y^2 + z^2z^2$$

$$x^2y^2 + z^2z^2$$

$$x^2y^2 + z^2z^2$$

GOVERNMENT COLLEGE OF ENGINEERING , AMRAVATI

CLASS TEST -2 Winter -2016

(10)

Course – SHU 301, 303, 304 Engineering Mathematics –III

Max, Marks : 15

Instructions : Attempt any five Question.

(15)

Q1:- Solve $p(1+q^2) = q(z-b)$

Q2:- Solve $q = xp + p^2$

Q3:- Solve $z^2(p^2+q^2) = x^2 + y^2$

Q4:- Solve $(3y - 2z)p + (z - 3x)q = 2x - y$

Q5:- Solve $(x^2 + y^2)(p^2 + q^2) = 1$

Q6:- Show that $\overset{\text{sol}\circ}{e} (x+y)(p+q)^2 + (x-y)(p-q)^2 = 1$