

<b>Course/Branch:</b> BE/ CIVIL,EEE,MECH	<b>Year / Semester :</b> II/III	Format No.	NAC/TLP- 07a.13
<b>Subject Code :</b> MA8353	<b>Subject Name :</b> TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS	Rev. No.	02
<b>Unit No :</b> 01	<b>Unit Name:</b> Partial Differential Equations	Date	30-09-2020

**OBJECTIVE TYPE QUESTION BANK**

S.No.	Objective Questions [ MCQ / True or False / Fill up with Choices)	BTL
1	Solve $xp + yq = z$  (a). $f\left(\frac{x}{y}, \frac{y}{z}\right)$ (b). $f\left(\frac{z}{y}, \frac{y}{z}\right)$ (c). $f\left(\frac{x}{y}, \frac{z}{y}\right)$ (d). $f\left(\frac{x}{y}, \frac{z}{y}\right)$	L1
2	The solution of $r+6s+9t = 0$  (a). $f_1(y-3x)+xf_2(y-3x)$ (b). $f_1(y-3x)+f_2(y-3x)$  (c). $f_1(y+3x)+xf_2(y+3x)$ (d). $f_1(y-3x)-xf_2(y-3x)$	L1
3	The auxiliary equation of the equation $(y-z)p + (z-x)q = (x-y)$ is  (a). $\phi_1(x+y+z, x^2+y^2+z^2)$ (b). $\phi_1(x+y+z, 3x+2y+2z)$  (c). $\phi_2(x+y+z, x^3+y^3+z^3)$ (d). $\phi_2(x+y+z, 2x+y^3+4z^3)$	L1
4	The multiplies of the equation $X(Y^2+Z)p - Y(X^2+Z)q = Z(X^2 - Y^2)$ is  (a). $\phi_1(xyz, x^2+y^2-2z)$ (b). $\phi_1(xyz, x^2+y^2+2z)$  (c). $\phi_1(x+y+z, x^2+y^2+z^2)$ (d). $\phi_1(x+y+z, 3x+2y+2z)$	L1
5	Find the general solution of $(3z-4y)p + (4x-2z)q = 2y-3x$ .  (a). $\phi_1(2x+3y+4z, x^2+y^2+z^2)$ (b). $\phi_1(xyz, x^2+y^2+2z)$  (c). $\phi_1(x+y+z, x^2+y^2+z^2)$ (d). $\phi_1(x+y+z, 3x+2y+2z)$	
6	The order and the degree of the P.D.E $\frac{\partial^2 Z}{\partial^2 X} + 2XY\left(\frac{\partial Z}{\partial X}\right)^2 + \frac{\partial Z}{\partial X} = 5$ is  (a).1 (b).2 (c).0 (d).3	L1
7	The auxiliary equations of Lagrange's linear equation $Pp + Qq = R$ .  (a). $\phi_1(x+y=C_1, y+z=C_2)$ (b). $\phi_1(x-y=C_1, y-z=C_2)$  (c). $\phi_1(x+y+z=C_1, y+z=C_2)$ (d). $\phi_1(x+y=C_1, x+y+z=C_2)$	L1

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8	A partial differential equation requires -----	L1
9	A Solution to the partial differential equation $\frac{\partial^2 u}{\partial^2 X^2} = 16 \frac{\partial^2 u}{\partial^2 Y^2}$ is  (a). $f_1(y+4x) + f_2(y-4x)$ (b). $f_1(y-4x) + xf_2(y-4x)$  (c). $f_1(y+4x) + xf_2(y-4x)$ (d). $f_1(y+3x) + f_2(y-4x)$	L1
10	The solution of $P\sqrt{X} + Q\sqrt{Y} = \sqrt{Z}$  (a). $(\sqrt{x} - \sqrt{y}, \sqrt{y} - \sqrt{z})$ (b). $(\sqrt{x} + \sqrt{y}, \sqrt{y} - \sqrt{z})$  (c). $(\sqrt{x} + \sqrt{y}, \sqrt{y} + \sqrt{z})$ (d). $(\sqrt{x} - \sqrt{y}, \sqrt{y} + \sqrt{z})$	L1
11	The Lagrange's linear partial differential equation of the form-----  (a). $e^x$ (b). $e^{-x}$ (c). $e^{2x}$ (d). $e^{3x}$	L1
12	Find the particular integral of $(D^2 + 4DD')z = e^x$  (a). $e^x$ (b). $e^{-x}$ (c). $e^{2x}$ (d). $e^{3x}$	L1
13	Solve $(D - D')^3 z = 0$  (a). $f_1(y) + xf_2(y) + x^2 f_3(y)$ (b). $f_1(y) + xf_2(y) + x^2 f_3(y)$  (c). $f_1(y) + xf_2(y) + x^2 f_3(y)$ (d). $f_1(y) + xf_2(y) + x^2 f_3(y)$	L1
14	Find the complete integral of $p + q = x + y$ .  (a). $(x-a)^2 + (y-b)^2 + c = 2z$ (b). $(x-a)^2 + (y+b)^2 + c = 2z$  (c). $x^2 + y^2 + z^2 = 0$ (d). $2x^2 + 3y^2 + 5z^2 = 0$	L1
15	Find the complementary function of $(D^2 - DD' + D' - 1)z = \cos(x + 2y)$  (a). $e^{-x} f_1(y+x) + e^x f_2(y+0x) + \frac{\sin(x+2y)}{2}$  (b). $e^{-x} f_1(y+x) + e^x f_2(y+0x) + \frac{\cos(x+2y)}{2}$	L1

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	(c). $f_1(y+x) + f_2(y+0x) + \frac{\sin(x+2y)}{2}$ (d). $f_1(y+x) + f_2(y+0x) + \frac{\sin(x+2y)}{2}$	
16	Obtain the partial differential equation by eliminating arbitrary constants 'a' and 'b' from $(x-a)^2 + (y-b)^2 + z^2 = 1$ .  (a). $Z^2(p^2 + q^2 + 1) = 1$ (b). $(p^2 + q^2 + 1) = \frac{1}{Z^2}$ (c). $p^2 + q^2 = 1$ (d). $p^2 + q^2 + Z^2 = 1$	L1
17	Eliminate the arbitrary function $f$ from $z = f\left(\frac{xy}{z}\right)$ and form the PDE.  (a). $\frac{y}{x}$ (b). $\frac{x}{y}$ (c). $f\left(\frac{z}{y}, \frac{y}{z}\right)$ (d). $f\left(\frac{x}{y}, \frac{z}{y}\right)$	L1
18	Form a differential equation by eliminating the arbitrary constants 'a' and 'b' from $(x-a)^2 + (y-b)^2 = z^2 \cot^2 \alpha$ .  (a). $p^2 + q^2 = \tan^2 \alpha$ (b). $p^2 + q^2 = \cot^2 \alpha$ (c). $p^2 + q^2 = 1$ (d). $p^2 + q^2 + r^2 = 1$	L1
19	Find the PDE of all planes having equal intercepts from the x and y axis.  (a). $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 0$ (b). $\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 0$ (c). 0 (d). 1	L1
20	Find the general solution of $(3z - 4y)p + (4x - 2z)q = 2y - 3x$ .  (a). $\phi_1(2x + 3y + 4z, x^2 + y^2 + z^2)$ (b). $\phi_1(xyz, x^2 + y^2 + 2z)$ (c). $\phi_1(x + y + z, x^2 + y^2 + z^2)$ (d). $\phi_1(x + y + z, 3x + 2y + 2z)$	L1