SRM Institute of Science and Technology

Ramapuram Campus

Department of Mathematics

Continuous Assessment I

18MAB201T/ Transforms and Boundary Value Problems

Part-A

1.	The order and degree of a PDE $\frac{\partial^2 z}{\partial x^2}+\frac{\partial^2 z}{\partial y^2}=0$ is		(CLO-1 Remember)
	a) 2,1 b) 1,2 c) 2,2 d) 1,1	**Ans: (a)**	
2.	The order and degree of a PDE $\left(\frac{\partial z}{\partial x}\right)^3+\frac{\partial^2 z}{\partial y^2}=\cos(x+y)$ is		(CLO-1 Remember)
	a)1,2 b) 2,1 c) 1,3 d) 3,1	**Ans: (b)**	
3.	While forming the PDE, if the number of arbitrary constants to be eliminated is equal to the number of independent variables,then the resulting PDE will be of _____ order.		(CLO-1 Remember)
	a)1st b) 2nd c) 3rd d) >1	**Ans: (a)**	
4.	The complete integral of $z=px+qy+p^2q^2$ is		(CLO-1 Apply)
	a)$z=ax+by+a^2b^2$ b) $z=px+qy$ c) $z=ax+by$ d) $z=ax+by$+c	**Ans: (a)**	
5.	The solution of $(D^2-3DD'+2D'^2)Z=0$ is		(CLO-1 Apply)
	a) $z=\varphi_1(y+x)+\varphi_2(y+2x)$ b) $z=Ae^x+Be^{2x}$ c) $z=\varphi_1(y+2x)+\varphi_2(y-x)$ d) a$z=Ae^x+Be^{2x}$	**Ans: (a)**	
6.	The P.I of $(D^2+4DD'^2)z=e^x$ is		(CLO-1 Apply)
	a) e^x b) e^{-x} c) e^{2x} d) 0	**Ans: (a)**	
7	The P.I of $(D^3-2D^2D')z=4\sin(x+y)$ is		(CLO-1 Apply)
	a) $4\sin(x+y)$ b) $-4\cos(x+y)$ c) $4\cos(x+y)$ d) 0	**Ans: (b)**	

8.	The complementary function of $(D^2 + 2DD' + D'^2)Z = xy$ is		(CLO-1 Apply)
	a) $\varphi_1(y-x) + x\varphi_2(y-x)$ b) $(A+Bx)e^{-x}$ c) $\varphi_1(y-2x) + x\varphi_2(y-x)$ d)2x $(A+Bx)e^{-x}$	**Ans: (a)**	
9.	The P.I of $\frac{\partial^3 z}{\partial z^3} - 2\frac{\partial^3 z}{\partial x^2 \partial y} = e^{x+2y}$ is		(CLO-1 Apply)
	a) $\frac{1}{3}e^{x+2y}$ b) $-\frac{1}{3}e^{x+2y}$ c) $-e^{x+2y}$ d) x$\frac{1}{3}e^{x+2y}$	**Ans: (b)**	
10.	The P.I of $(D^2 - 2DD')z = e^{2x}$ *is*		(CLO-1 Apply)
	a) e^{2x} b) $\frac{1}{4}e^{-2x}$ c) $\frac{1}{4}e^{2x}$ d) 0	**Ans: (a)**	
11.	The P.I of $(D^2 - 2DD' + D'^2)z = \cos(x-3y)$ is		(CLO-1 Apply)
	a) $-\frac{1}{16}\cos(x-3y)$ b) $\frac{1}{16}\cos(x-3y)$ c) $\cos(x-3y)$ d) 0	**Ans: (a)**	
12	The complete integral of $z = px + qy + p^2q^2$ is		(CLO-1 Apply)
	(a)$z = ax + by + a^2b^2$ b) $z = px + qy$ c) $z = ax + by$ d) $z = px + qy$+2	**Ans: (a)**	
13	The complete integral of F(p,q) =0 is		(CLO-1 Apply)
	a) 0 b) px + qy + c c) Z = ax + f(a)y + c d)1	**Ans: (c)**	
14.	While forming the PDE, if the number of arbitrary constants to be eliminated is more than the number of independent variables, then the resulting PDE will be of _____ order.		(CLO-1 Remember)
	a) 1st b) 2nd and higher c) only 3rd d) only 2nd	**Ans: (b)**	
15.	The complete integral of z= px+qy+p+q is		(CLO-1 Apply)
	a)z=ax+by+c b) z= ax+by+a+b c)z=ax+by+b d) z= ax+by+a	**Ans: (b)**	
16.	The P.I of $(D^2 - 2DD' + D'^2)Z = 8e^{x+2y}$ is		(CLO-1 Apply)

	a) e^{x+2y} b) $8e^{x+2y}$ c) 8 d) 0	**Ans: (b)**	
17.	The P.I of $\frac{\partial^2 z}{\partial x^2}+\frac{\partial^2 z}{\partial x \partial y}-6\frac{\partial^2 z}{\partial y^2}=\cos(3x+2y)$ is		(CLO-1 Apply)
	a) $\frac{1}{9}\cos(3x+2y)$ b) $-\frac{1}{9}\cos(3x+2y)$ c) 0 d) 1	**Ans: (a)**	

18.	The solution of $(D^3-3D^2D'+2DD'^2)z=0$ is		(CLO-1 Apply)
	a) $z=f_1(y)+f_2(y+x)+f_3(y+2x)$ b) $z=f_1(y)+f_2(y-x)+f_3(y+2x)$ c) $z=f_1(y)+f_2(y+x)+f_3(y-2x)$ d) xy $z=f_1(y)+f_2(y+x)+f_3(y-2x)$	Ans: (a)	
19.	The P.I of $(D^2-2DD')z=4\sin(x+y)$ is		(CLO-1 Apply)
	a) $4\sin(x+y)$ b) $-4\cos(x+y)$ c) $4\cos(x+y)$ d) 0	Ans: (b)	
20.	The solution of $r-4s+4t=0$ is		(CLO-1 Apply)
	a) $z=(A+Bx)e^{2x}$ b) $z=\varphi_1(y+2x)+x\varphi_2(y+2x)$ c) $z=\varphi_1(y+x)+\varphi_2(y+2x)$ d) z=1	Ans: (b)	
21.	The complete integral of $\sqrt{p}+\sqrt{q}=1$ is		(CLO-1 Apply)
	a) $z=ax+\left(1-\sqrt{a}\right)^2y+c$ b) $z=px+\left(1-\sqrt{a}\right)^2y+c$ c)$z=x+\left(1+\sqrt{a}\right)^2y+c$ d) $z=px+\left(1+\sqrt{a}\right)^2y+c$	**Ans: (a)**	
22.	The complete integral of $z=px+qy+p^2+q^2$ is		(CLO-1 Apply)
	a) $z=ax+by+a^2+b^2$ b) $z=px+qy$ c) $z=ax+by$ d) z=ay+bx	**Ans: (a)**	
23.	The solution of $(D^2-DD'-6D'^2)Z=0$ is		(CLO-1 Apply)

	a)$z = \varphi_1(y+3x) + \varphi_2(y-2x)$ b) $z = ax$ c) $z = Ae^x + Be^{2x}$ d) $z = \varphi_1(y+2x) + \varphi_2(y-x)$	**Ans: (a)**	
24.	Equation of the form Pp+Qq=R is called ----------		(CLO-1 Remember)
	a) Clairaut's type b) Lagrange's Linear equations c) Euler form d) Laurent's Form	**Ans: (b)**	
25.	The P.I of $(D^2 - 2DD' + D'^2)z = \sin(x-3y)$ is		(CLO-1 Apply)
	a) $-\frac{1}{16}\sin(x-3y)$ b) $\frac{1}{16}\sin(x-3y)$ c) $\sin(x-3y)$ d) 0	**Ans: (a)**	
26	The solution of $r-4s+4t=0$ is		(CLO-1 Apply)
	a) $z = (A+Bx)e^{2x}$ b) $z = \varphi_1(y+2x) + x\varphi_2(y+2x)$ c) $z = \varphi_1(y+x) + \varphi_2(y+2x)$ d) z=6	**Ans: (b)**	
27	While forming the PDE, if the number of arbitrary constants to be eliminated is more than the number of independent variables, then the resulting PDE will be of _____ order.		(CLO-1 Remember)
	a) 1st b) 2nd and higher c) 3rd and higher d) only 2nd	**Ans: (b)**	
28	The order and degree of a PDE $\frac{\partial z}{\partial x} + \frac{\partial^2 z}{\partial y^2} = \cos(x+y)$ is		(CLO-1 Apply)
	a)1,2 b) 2,1 c) 1,3 d) 3,1	**Ans: (b)**	
29	The solution of $yp = 2yx + \log q$ is a)$\boldsymbol{z = x^2 + ax + \frac{1}{a}e^{ay} + b}$ b)$z = y^2 + bx + \frac{1}{a}e^{ay} - b$ c)$z = a^2 + ax + \frac{1}{a}e^{ay} + b$ d)$z = x^2 - ax + \frac{1}{a}e^{ay} - b$	**Ans: (a)**	(CLO-1 Apply)
30	The complete solution of $p+q = sinx + siny$ is		(CLO-1 Apply)

	a)$z = a(x+y) - cosx - cosy + b$ b)$z = a(x-y) + cosx - cosy + b$ c)$\boldsymbol{z = a(x-y) - cosx - cosy + b}$ d)$z = a(x-y) - cosx + cosy + b$	**Ans: (c)**	
31	The solution of $z^2 = 1 + p^2 + q^2$ is a)$sinh^{-1}z = \frac{1}{\sqrt{1+a^2}}(x-ay) + b$ b)$cosh^{-1}z = \frac{1}{\sqrt{1+a^2}}(x-ay) - b$ c)$sinh^{-1}z = \frac{1}{\sqrt{1+a^2}}(x+ay) + b$ **d)**$\boldsymbol{cosh^{-1}z = \frac{1}{\sqrt{1+a^2}}(x+ay) + b}$	**Ans: (d)**	(CLO-1 Apply)
32	The complete Integral of $pq = 4$ is **a)** $\boldsymbol{z = ax + \frac{4}{a}y + c}$ b) $z = cx - \frac{4}{a}y + c$ c) $z = ax - \frac{6}{a}y + c$ d) $z = x + \frac{4}{a}y + c$	**Ans: (a)**	(CLO-1 Apply)
33	The Particular Integral of $(D+D')^2 z = e^{x-y}$ is a)$\frac{x}{2}e^{x-y}$ b)$\frac{1}{2}e^{x-y}$ **c)**$\boldsymbol{\frac{x^2}{2}e^{x-y}}$ d) $\frac{x^2}{6}e^{x-y}$	**Ans: (c)**	(CLO-1 Apply)
34	The Particular Integral of $[D^2 - 6DD' + 5D'^2]z = e^x sinhy$ is **a)** $\boldsymbol{\frac{-x}{8}e^{x+y} - \frac{1}{24}e^{x-y}}$ b) $\frac{-x}{16}e^{x+y} - \frac{1}{8}e^{x-y}$	**Ans: (a)**	(CLO-1 Apply)

	c) $\frac{1}{8}e^{x+y}+\frac{1}{8}e^{x-y}$ d) $\frac{1}{16}e^{x+y}-\frac{x}{8}e^{x-y}$		
35.	The Particular Integral of $[D^2-6DD'+5D'^2]z=xy$ is **a)** $\frac{x^3y}{6}+\frac{x^4}{4}$ b) $\frac{x^3y}{6}-\frac{x^4}{4}$ c) $\frac{x^3y}{26}+\frac{x^4}{24}$ d) $\frac{x^3y}{26}+\frac{x^4y}{4}$	**Ans: (a)**	(CLO-1 Apply)
36	The complete integral of z=px+qy+p-q is		(CLO-1 Apply)
	(a)z= ax+by+a-b b) z=ax+by c) $z=ax+by$+c d) $z=px+qy$+2	**Ans: (a)**	