GPCET
Pioneering Innovative Education

SET-4

G.PULLAIAH COLLEGE OF ENGINEERING &TECHNOLOGY:: KURNOOL

(AUTONOMOUS)

B Tech I Year II Sem (R20) First –Mid Term Examinations, March-2021

Common to CE,ME,EEE,ECE,CSE,CSE-IOT

ub: MATHEMATICS-II
ime: 90 min

Date: 14/09/21
Max.Marks:30M

Answer the following Questions (3 X10 =30 M)

S.No		Questions	Marks	CO	Cognitive Level
1	A	Solve $y^2\,dx + (x^2 - xy - y^2)dy = 0$	5	CO1	Apply
	B	Solve$(D^2 - 3D + 2)y = \cosh x$	5	CO1.CO2	Apply
		(OR)			
2	A	Solve $(D^2 - 6D + 13)y = 8e^x \sin 2x$	5	CO1.CO2	Apply
	B	Solve $(D^2 - 1)y = \frac{2}{1+e^x}$By the method of Variation of parameters	5	CO2	Evaluate
3	A	Solve $(D^3 + 2D^2 + D)y = e^{2x} + \sin 2x$	5	CO1.CO2	Apply
	B	Solve $(x^2D^2 - xD + 2)y = x\log x$	5	CO2	Apply
		(OR)			
4		The charge $q(t)$ on the capacitor is given by D.E., $10\frac{d^2q}{dt^2} + 120\frac{dq}{dt} + 1000q = 17\sin 2t$. At time zero and the charge on the capacitor is $\frac{1}{2000}$ coulomb. Find the charge on the capacitor for $t > 0$.	10	CO3	Evaluate
5		Solve $((1+x)^2D^2 + (1+x)D + 1)y = 4\cos[\log(1+x)]$	10	CO2	Apply
		(OR)			
6		Solve $\frac{dx}{dt} + 5x - 2y = t$, $\frac{dy}{dt} + 2x + y = 0$	10	CO3	Apply

Signature of the Faculty

Signature of the HOD

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SET-2

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Date: 14/09/21
Max.Marks:30M

Sub: MATHEMATICS-II
Time: 90 min

Answer the following Questions (3 X10 =30 M)

S.No		Questions	Marks	CO	Cognitive Level
1	A	Form the Partial differential equations by the elimination of arbitrary functions from $\emptyset(x+y+z, x^2+y^2+z^2)=0$	5	CO3	Apply
	B	Solve $x^2(y-z)p+y^2(z-x)q=z^2(x-y)$	5	CO3	Apply
		(OR)			
2		Solve $4r+12s+9t=e^{3x-2y}$	10	CO3	Apply
3	A	Find the angle of intersection of the spheres $x^2+y^2+z^2=29$ and $x^2+y^2+z^2+4x-6y-8z-47=0$ at the point (4,-3,2)	5	CO4	Remembe
	B	If $\bar{a}$ is a differential function and ϕ is a differential scalar function then prove that div($\Phi\ \bar{a}$)=(grad Φ) . $\bar{a}$ + Φ div $\bar{a}$	5	CO4	Evaluate
		(OR)			
4		Prove that $\nabla \times (\nabla \times \bar{a}) = \nabla(\nabla \cdot \bar{a}) - \nabla^2 \bar{a}$	10	CO4	Evaluate
5		Evaluate $\iint \bar{F} \cdot d\bar{s}$,if $\bar{F} = yz\bar{i} + 2y^2\bar{j} + xz^2\bar{k}$ and S is a surface of the cylinder $x^2+y^2=9$ contained In the first octant between the planes Z=0 and Z=2	10	CO5	Evaluate
		(OR)			
6		Verify Stokes theorem for $\bar{F} = -y^3\bar{i} + x^3\bar{j}$,where S is the circular disc $x^2+y^2 \le 1, z=0$	10	CO5	Apply

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