



Sree Dattha Institute of Engineering & Science
Sheriguda(V), Ibrahimpatnam (M), R.R. Dt. Hyderabad -501510.

Department of Humanities & Sciences

M2 UNIT: 1 SLIPTEST QUESTIONS				
Ordinary differential equation				
SOLVE THE FOLLOWING				
S.NO	QUESTIONS	MARKS	Learning Objectives	CO
1	Solve $(1+x^2)\frac{dy}{dx}+2yx-6x^2=0$	3	L3	CO1
2	Solve $(3xy + y^2) dx - 3x^2 dy = 0$	2	L3	CO1
3	a) Solve $(1+e^{\frac{x}{y}})dx + e^{\frac{x}{y}}(1 - \frac{x}{y})dy = 0$ b) solve $(xy^3+y)dx + 2(x^2y^2+x+y^4)dy = 0$ (OR)	5	L3	CO1
4	The rate of cooling of a body is proportional to the difference blw the temp of body & surrounding air. If the air temp is 20°C & the body cools for 20m in from 140°C to 80°C, find when the temp will be 35°C	5	L4	CO2
M2 UNIT:2 SLIPTEST QUESTIONS				
Ordinary differential equation with Higher Order Co-efficients				
SOLVE THE FOLLOWING				
S.NO	QUESTIONS	MARKS	Learning Objectives	CO
1	Solve the D.E $(D^2 - 3D + 4)y = 0$	2	L3	CO2
2	Solve the D.E $(D^2 + a^2)y = \tan ax$	3	L3	CO2
3	Solve the D.E $(D^3 + 2D^2 + D)y = e^{2x} + x^2 + x + \sin 2x$ (OR)	5	L3	CO2
4	a) Apply the method of variation of parameters $y'' + y = \sec x$ b) Solve $(2x - 1)^3 y^{11} + (2x-1)y' - 2y = x$	5	L3	CO2



Sree Dattha Institute of Engineering & Science
Sheriguda(V), Ibrahimpatnam (M), R.R. Dt. Hyderabad -501510.

Department of Humanities & Sciences

M2 UNIT: 3 SLIPTEST QUESTIONS				
Multiple Integrals				
SOLVE THE FOLLOWING				
S.NO	QUESTIONS	MARKS	Learning Objectives	CO
1	Evaluate $\int_0^{\log 2} \int_0^x \int_0^{x+\log y} e^{x+y+z} dz dy dx$	3	L5	CO3
2	Find the area of the loop of the curve $r=a(1+\cos\theta)$	2	L1	CO3
3	Find the volume bounded by the x y plane, the cylinder $x^2 + y^2 = 1$ & $2x + 3y + 4z = 12$ (OR)	5	L4	CO3
4	a) Evaluate $\int_0^1 \int_0^{1-x} \int_0^{1-x-y} x dx dy dz$ b) Using double integration find the volume of the tetrahedron bounded by the co-ordinate planes & the plane $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 1$	5	L5,L4	CO3
M2 UNIT: 4 SLIPTEST QUESTIONS				
Vector Differentiation				
SOLVE THE FOLLOWING				
S.NO	QUESTIONS	MARKS	Learning Objectives	CO
1	Find $\nabla(x^2 + y^2z)$	2	L1	CO4
2	Show That $\text{curl}(r^n \bar{r}) = 0$	3	L1	CO4
3	Prove That $\nabla \cdot (\nabla \times \bar{a}) = \nabla \cdot (\nabla \cdot \bar{a}) - \nabla^2 \cdot \bar{a}$	5	L1	CO4
4	Find a) $\nabla(x^2 + y^2z)$ b) $\nabla(r^n) = nr^{n-2}\bar{r}$	5	L1	CO4



Sree Dattha Institute of Engineering & Science
 Sheriguda(V), Ibrahimpatnam (M), R.R. Dt. Hyderabad -501510.

Department of Humanities & Sciences

M2 UNIT: 5 SLIPTEST QUESTIONS				
Vector Integration				
SOLVE THE FOLLOWING				
S.NO	QUESTIONS	MARKS	Learning Objectives	CO
1	Compute $\int (ax^2 + by^2 + cz^2) ds$ over the surface of the sphere $x^2 + y^2 + z^2 = 1$	2	L1	
2	Using divergence theorem to evaluate $\int_s \int \bar{F} ds$ where $\bar{F}=4xi-2y^2j + z^2k$ & s is the surface bounded by the region $x^2 + y^2 = 4$; $z=0$ & $z=3$	3	L4	
3	Prove by the stokes theorem $\text{curl}(\text{grad}\phi) = \bar{0}$ (OR)	5	L3	
4	Verify Greens theorem in plane for $\oint (3x^2 - 8y^2)dx + (4y - 6xy)dy$ where c is the region bounded by $y=\sqrt{x}$ & $y=x^2$	5	L5	