

**II SEMESTER  
ENGINEERING MATHEMATICS-II**

**PART-A**

**UNIT-I**

1. (a) Radius of curvature- Cartesian , Parametric, Polar and pedal forms : 1subdivision
- (b) Rolle's theorem, Lagrange's - Cauchy's mean value theorem : 1subdivision
- (c) Taylor's theorem for a function of a single variable-  
Maclaurin's series expansions : 1subdivision

**UNIT-II**

2. (a) Indeterminate forms  $\frac{0}{0}, \frac{\infty}{\infty}, \infty - \infty, 0 * \infty, 1^\infty, 0^0, \infty^0$  etc.- L'Hospital's rule : 1 subdivision
- (b) Taylor's theorem for a function of two variables : 1 subdivision
- (c) Maxima and minima for function of two variables or  
Lagrange's method of undetermined multipliers for extreme values: 1 subdivision

**UNIT-III**

3. (a) Double integrals- change of order of integration/ change of variables /  
applications. : 1 subdivision
- (b) Triple integrals- change of variables / applications : 1 subdivision
- (c) Beta and gamma functions : 1 subdivision

**UNIT-IV**

4. (a) Line integrals – Green's theorem, : 1 subdivision
- (b) Surface integrals and volume integrals- Stoke's, Gauss's theorems : 1subdivision
- (c) Orthogonal curvilinear coordinates : 1 subdivision

**PART-B**

**UNIT-V**

5. (a & b) Linear differential equations of second and higher order with  
Constant coefficients : 2 subdivisions
- (c) Method of undetermined coefficients : 1 subdivision

**UNIT-VI**

6. (a) Method of variation of parameters : 1 subdivision
- (b) Solutions of Cauchy's homogeneous linear equation -  
Legendre's linear differential equations : 1 subdivision
- (c) Solutions of initial and boundary value problems : 1 subdivision

**UNIT-VII**

7. (a) Transforms of elementary functions -  
Derivatives and integrals of transforms : 1 subdivision
- (b) Periodic functions : 1 subdivision
- (c) Unit step function and unit impulse function : 1 subdivision

**UNIT-VIII**

8. (a) Inverse transforms : 1subdivision
- (b) Convolution theorem : 1subdivision
- (c) Solutions of linear D.E - simultaneous D.E-  
Applications of D.E. to Engineering problems : 1 subdivision