Dr.V.S.KRISHNA GOVT.DEGREE COLLEGE (A), VISAKHAPATNAM.

CBCS/ SEMESTER SYSTEM

(w.e.f. 2020-21 Admitted Batch)

B.A./B.Sc. MATHEMATICS

COURSE-I: DIFFERENTIAL EQUATIONS

Time:3Hrs **Max.Marks:75M**

SECTION –A

Answer any FIVE questions 5x5=25M

Each question carries 5 marks

1. Solve $y(1+xy)dx + x(1-xy)dy = 0$.
2. Solve $(1+y^2)dx = (\tan^{-1}y - x)dy$.
3. Solve $p^2-5p+6=0$.
4. Solve $(D^4-4D^3+6D^2-4D+1)y = 0$.
5. Solve $(D^2-3D+2)y = \cosh x$.
6. Solve $(D^2+2D+1)y = x\cos x$.
7. Solve $\frac{d^2y}{dx^2} - 6\frac{dy}{dx} + 13y = 8e^{3x}\sin 2x$.
8. Solve $(D^2+1)y = \operatorname{cosec} x$ by the method of variation of parameters. .

SECTION-B

Answer any FIVE questions. 5x10=50M

Each question carries 10 marks.

9 a) Solve $x\frac{dy}{dx} + y = y^2 \log x$.

(or)

b) Solve $y^2 dx = (x^2 - xy - y^2)dy$.

10 a). Solve $y = 2xp + x^2p^4$.

(or)

b). Solve $p^2 + 2pyCotx = y^2$.

11 a). Solve $(D^2-4D+3)y = \sin 3x \cos 2x$.

(or)

b). Solve $(D^2+9)y = \cos^3 x$

12. a). Solve $(D^4+2D^2+1)y = x^2\cos x$

(or)

b). Solve $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = xe^x \sin x$

13. a). Solve $(x^3D^3 + 2x^2D^2 + 2)y = 10\left(x + \frac{1}{x}\right)$

(or)

b). Solve $(D^2+a^2)y=Cotax$ by the method of variation of parameters.