

--	--	--	--	--	--	--	--

SRI Y.N.COLLEGE (AUTONOMOUS)–NARSAPUR, W.G.Dt.

(Affiliated to Adikavi Nannaya University)

I B.Sc., Degree Examinations, Oct/Nov 2016

(At the end of 1st Semester)

(For 2016-19 batch)

Part – II

MATHEMATICS
(Differential Equations)

Paper – I A

Date: 31.10.2016 AN

Duration: 3 hrs

Max Marks: 75

PART - I

Answer any FIVE questions :

5x5=25

1. Solve $(1 + e^{y/x})dx + (1 - \frac{x}{y})e^{y/x}dy = 0$

2. Solve $(1 - x^2)\frac{dy}{dx} + 2xy = x\sqrt{1 - x^2}$

3. Solve $(px - y)(py + x) = 2p$

4. Solve $(D^3 - 5D^2 + 8D - 4)y = e^{2x}$

5. Solve $(D^2 + D + 1)y = x^3$

6. Solve $(D^2 - 2D + 1)y = x \sin x$

7. Solve $x^2 \frac{d^2y}{dx^2} - 2x(1+x)\frac{dy}{dx} + 2(1+x)y = x^3$

8. Solve $(x^2 D^2 - xD + 2)y = x \log x$

PART - II

Answer any FIVE questions, choosing atleast TWO question from each section : 5x10=50

SECTION - A

9. Solve $(y^4 + 2y)dx + (xy^3 + 2y^4 - 4x)dy = 0$

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

11. Show that the family of confocal conics $\frac{x^2}{a^2 + \lambda} + \frac{y^2}{b^2 + \lambda} = 1$ is self orthogonal, where λ being parameter

12. Solve $(xy)P^2 + (3x^2 - 2y^2)P - 6xy = 0$

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

SECTION - B

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

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

16. Solve $(D^2 - 4D + 3)y = 2xe^{3x} + 3e^x \cos 2x$

17. Solve $y' + (1 - \cot x)y' - y \cot x = \sin^2 x$ given that $y = e^{-x}$ is a part of complementary function

18. Solve $[(x-1)D^2 - xD + 1]y = (x-1)^2$ by the method of variation of parameters



--	--	--	--	--	--	--	--	--	--

SRI Y.N.COLLEGE (AUTONOMOUS)–NARSAPUR, W.G.Dt.

(Affiliated to Adikavi Nannaya University)

I B.Sc., Degree Examinations, Oct/Nov 2017(At the end of 1st Semester)**Regular (2017 batch), Supplementary (2016 batch)****MATHEMATICS** Paper – I

(Differential Equations)



Date: 27.10.2017 AN

Max Marks:75

Duration: 3hrs

Answer any five Questions, each Question carries Five marks

5X5M =25M

1. Solve $(1+y^2)dx=(\tan^{-1}y-x)dy$
2. Solve $x \frac{dy}{dx} = y + xe^{y/x}$
3. Solve $xp^3 = a + bp$
4. Solve $(D^2 - 3D + 2)y = \cos hx$
5. Solve $(D^2 + 2D + 1)y = x \cos x$
6. Solve $(D^2 - 4D + 4)y = x^3$
7. Solve $(x^2D^2 - xD + 2)y = x \log x$
8. Solve $x^2 \frac{d^2y}{dx^2} - 2x(1+x) \frac{dy}{dx} + 2(1+x)y = x^3$

Part-II

Answers any five Questions. Choosing atleast two Questions from each section .each question carries 10 marks. (5X10M=50M)

Section-A

9. Solve $x^2ydx - (x^3 + y^3)dy = 0$
10. Solve $(y^4 + 2y)dx + (xy^3 + 2y^4 - 4x)dy = 0$
11. Find the orthogonal Trajectories of the family of curves $r^n \sin n\theta = a^n$, Where 'a' is parameter
12. Solve $y + px = p^2x^4$
13. Solve $(D^2 - 5D + 6)y = xe^{4x}$

Section-B

14. Solve $(D^2 - 4D + 3)y = \sin 3x \cos 2x$
15. Solve $\frac{d^2y}{dx^2} - 6 \frac{dy}{dx} + 13y = 8e^{3x} \sin 2x$
16. Solve $(D^2 - 2D + 4)y = 8(x^2 + e^{2x} + \sin 2x)$
17. Solve $Y'' + 4y = 4 \tan 2x$ by the method of variation of parameters
18. Solve $\frac{d^2y}{dx^2} - \cot x \frac{dy}{dx} - (1 - \cot x)y = e^x \sin x$

Paper Code: 1101

Regd. No

--	--	--	--	--	--	--	--	--	--

SRI Y.N.COLLEGE (AUTONOMOUS)–NARSAPUR, W.G.Dt.

(Affiliated to Adikavi Nannaya University)

I B.Sc., Degree Examinations, Oct/Nov 2018

(At the end of 1st Semester)

Regular (2018 batch), Supplementary (2017,2016 batches)

MATHEMATICS

Paper – I

(Differential Equations)



Date: 01.11.2018 AN

Duration: 3hrs

Max Marks: 75

PART I

Answer any **FIVE** Questions, each question carries FIVE marks.

5X5M=25M

1. Solve $(e^y + 1)\cos x dx + e^y \sin x dy = 0$ సాధించండి.
2. Solve $x \frac{dy}{dx} + 2y - x^2 \log x = 0$ సాధించండి.
3. Solve $(py + x)(px - y) = 2p$ సాధించండి.
4. Solve $(D^3 - 7D + 6)y = e^{2x}$ సాధించండి.
5. Solve $(D^2 - 2D + 1)y = x^2 e^{3x}$ సాధించండి.
6. Solve $\frac{d^2y}{dx^2} - \frac{dy}{dx} - 2y = \sin 2x$ సాధించండి.
7. Solve $x^2 y'' - 2x(1+x)y' + 2(1+x)y = x^3$ సాధించండి.
8. Solve $(D^2 - 2D)y = e^x \sin x$, by the method of variation of parameters.

పరామితులమార్పు పద్ధతిని ఉపయోగించి $(D^2 - 2D)y = e^x \sin x$ సాధించండి.

PART II

Answer any FIVE questions. Choosing at least TWO questions from each section.
Each question carries 10 marks.

5X10M=50M

SECTION-A

9. Solve $y(xy + 2x^2y^2)dx + x(xy - x^2y^2)dy = 0$ సాధించండి.
10. Solve $(x + 1) \frac{dy}{dx} + 1 = e^{x-y}$. Also find the solution for which $y(0)=0$
 $(x + 1) \frac{dy}{dx} + 1 = e^{x-y} = 0$ సాధించండి. $y(0)=0$ అయినపుడు కూడా సాధన కనుక్కోండి
11. Find the orthogonal trajectories of the family of curves $x^{\frac{2}{3}} + y^{\frac{2}{3}} = a^{\frac{2}{3}}$,
where 'a' is a parameter?
పరామితిగా ఉన్న $x^{\frac{2}{3}} + y^{\frac{2}{3}} = a^{\frac{2}{3}}$ వక్రాల కుటుంబానికి లంబసంచేద వక్రాల కుటుంబం యొక్క
సమీకరణాన్ని కనుక్కోండి.
12. Solve $y^2 \log y = xpy + p^2$ సాధించండి.
13. Solve $3x^2 \frac{d^2y}{dx^2} + x \frac{dy}{dx} + y = x$ సాధించండి.

SECTION-B

14. Solve $(D^2 + 9)y = \cos^3 x$ సాధించండి.
15. Solve $(D^2 - 2D + 4)y = 8(x^2 + e^{2x} + \sin 2x)$ సాధించండి.
16. Solve $(D^4 + 2D^2 + 1)y = x^2 \cos x$ సాధించండి.
17. Solve $x \frac{d^2y}{dx^2} + (x - 2) \frac{dy}{dx} - 2y = x^3$ సాధించండి.
18. Solve $(D^2 + a^2)y = \tan ax$ సాధించండి.
