BSC - BOS

ALL - IN - ONE

HINDI MAHAVIDYALAYA

(AUTONOMOUS)

BOARD OF STUDIES

DEPARTMENT OF Mathematics

(2016-2017)

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
DEPARTMENT OF MATHEMATICS
BOARD OF STUDIES
Academic Year – 2016-17

Minutes of BOS Meeting

BOS meeting of the Department of Mathematics was held   08/08/2016, Monday at 11:00 AM

The following members were present

Prof. M. V Ramana Murthy.	-	University Nominee
Mrs. Shravanti Vanga	-	Chairperson
Prof. M. Rangamma	-	Member
Smt.K. Arunjyoti	-	Member
Dr. Padma Anuradha	-	Member

2.1   Welcome address by the chair

The chair welcomed the University Nominee, Ex-officio Member BOS, O.U Department of Mathematics and Members of B.O.S.

2.2   Details of choice based credit system.

Members were informed that TSCHE has referred that from the academic year 2016-17 autonomous institutions have to follow CBCS i.e. From the Academic Year 2016-17 Osmania University has instructed all the Degree colleges including Autonomous Degree colleges to follow CBCS under which after passing the exam student will get the Grade in the Final Result. 4 Credits are given for theory paper and 1 credit is given for practical in each semester.

2.3   Discussion and Distribution of Common Core Syllabus.

i.   Members were informed by the chair that Department of Mathematics, Hindi Mahavidyalaya is following common core syllabus prescribed by Osmania University.

ii.   We are adopting Osmania University same syllabus of each Semester as it is without any changes

Syllabus copy for both the semesters is enclosed.

Chairman,
Board of Studies in Mathematics
Osmania University
Hyderabad . 500 007

V. PADMAANURADHA
Assistant Professor
Goverment Degree College For Women

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
BOARD OF STUDIES
DEPARTMENT OF MATHEMATICS

Chairperson
Mrs. Shravanti Vanga
Head – Department of Mathematics
Hindi Mahavidyalaya
Nallakunta, Hyderabad.

University Nominee
Prof. Shri. M.V Ramana Murthy
Ex-Officio Member – BOS
Department of Mathematics
Osmania University, Hyderabad.

Members of BOS

1. Prof. M. Rangamma
   Head - Department of Mathematics
   Osmania University, Hyderabad

2. Ms. Arun Jyothi
   Andhra Mahila Sabha
   Arts & Science College
   Osmania University, Hyderabad

3. Dr. Padma Anuradha
   Govt. Women's College
   Mathematics Department, Begumpet

ALUMNI'S

Dr. Alka Mashalkar
Associate Professor, Mathematics
Osmania University, Hyderabad

Chairman,
Board of Studies in Mathematics
Department of Mathematics
Osmania University,
HYDERABAD-500 007. Hyderabad-500007.

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Head
Department of Mathematics
Osmania University,
Hyderabad - 500 007

V.P. Anuradha

V. PADMAANURADHA
Assistant Professor
Goverment Degree College For Women
Begumpet, Secunderabad.

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)

COMPOSITION OF THE BOARD OF STUDIES IN AN AUTONOMOUS COLLEGE

I. Composition: Department of Mathematics

1. Head of the department concerned (Chairperson)

    Mrs. Shravanti Vanga – Department of Mathematics

2. The entire faculty of each specialization.

    Mrs. Shravanti Vanga

3 One expert to be nominated by the vice-chancellor from a panel if six recommended by the College Principal.

    1. Prof. M. V. Ramana Murthi, Ex-Officio Member, BOS, Dept. of Mathematics

4. Experts in the subject from outside the college to be nominated by the Academic Council.

    1. Prof. M. Rangamma, Head of Mathematics Department, Osmania University, Hyderabad.

    2. Smt. Arun Jyothi, Mathematics Department, Andhra Mahila Sabha Arts & Science College, Hyderabad.

    3. Dr. Padma Anuradha, Govt. Women's College, Mathematics Department, Begumpet.

5. One postgraduate meritorious alumnus to be nominated by the Principal. The chairman, Board of Studies, may with the approval of the Principal of the College.

    1. Dr. Alka Mashalkar, Associate Professor, Mathematics, Osmania University, Hyderabad.

(a) Experts from outside the College whenever special courses of studies are to be formulated-To be nominated.

    (b) Other members of staff of the same faculty.

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Hyderabad - 500 007

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V. P. Anuradha

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Assistant Professor
Goverment Degree College For Women
Begumpet, Secunderabad.

2.4 Marks allotted for Internal and end Semester exams.

1. Internal assessment is of 20 marks. (15M for Internal + 5 M for assignment).In each Semester two internal assessment of 15 Marks will be conducted and an average of both the internal assessments will be added in the marks of Theory exam.
2. Theory Question paper is of 80 marks.
3. Total allotted marks are 100.

The distribution of marks was approved by the Member of BOS.

2.5 Discussion on Pattern and Model Paper of Semester exam and Model Paper of Internal Exam

1. It was informed by the department that in each Semester Two Internal exams will be conducted for 15 marks and 5 marks will be allotted for assignment. Average of marks of these two internal exams will be taken.

2. Semester exam will be conducted as per the Almanac which will be provided by the exam branch. Internal exam duration will be 30Mts and Semester exam duration will be of 3 hrs.

3. Model Question paper for Semester I and Semester II was discussed. Theory paper for each Semester will have 2 sections.

i) Section A contains 8 short Questions. The student has to answer four questions. Each Question carries 5 Marks (4X5=20 Marks)

ii) Section B contains 4 Essay type Questions with internal choice. Each Question carries 15 Marks (4X15=60 Marks)

Pattern of Model Question Papers for Paper I and Paper II are enclosed.
Pattern of Model Question Paper was approved by Member of BOS.

2.6 Discussion on Practical Exam Model paper.

It was decided in BOS meeting that 50 Marks Practical Exam of 3 hrs will be held in each Semester and 1 credit will be given for Practical in each Semester.

The Practical model paper was approved by the Member of BOS.

2.7 Panel of Examiners

The panel of examiners was approved by the members.
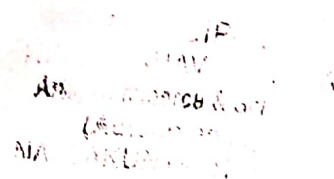List is enclosed

2.8 Any other matter.

1. It has been suggested to add one hour more for practicals.

2. It is resolved to recommend the examiner for setting the question paper by choosing at least one question from each unit in section A.

Prof. M.V. Ramana Murthy
Chairman
BoS in Mathematics
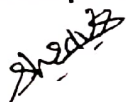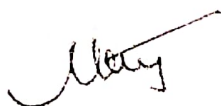Department of Mathematics
Osmania University,
Hyderabad-500007.

2.9   Vote of Thanks

Meeting concluded with the Vote of Thanks by Mrs. Shravanti Vanga.
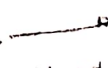

Chairperson   **University Nominee**   **Members**   **Principal**

Chairman,
Board of Studies in Mathematics
Osmania University,
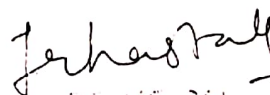Hyderabad-500007.

1.

2. M. R...

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3.

4. V.R.Anuradh

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& VIDYALAYA
& Science
(Autonomous)
NALLAKUNTA, HYD-44

DEPARTMENT OF MATHETMATICS
AGENDA OF THE MEETING
MONDAY 08/08/2016

2.1   Welcome address by the chair.

2.2   Details of choice base credit system.

2.3   Discussion on Common Core Syllabus.

2.4   Marks allotted for Internal and end Semester exams.

2.5   Discussion on Semester Exam, Semester Exam Model Paper & Internal Exam Model Paper

2.6   Discussion on Practical Exam Model Paper

2.7   Panel of Examiners

2.8   Any other matter

2.9   Vote of Thanks

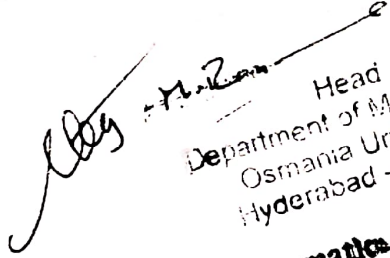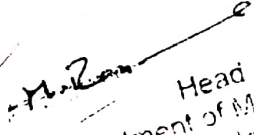# HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
B.Sc. 1st Year Mathematics
Semester – 1
Paper I

Code:	
Instruction	
Theory Classes	4 Hrs/Week
Practical Classes	2 Hrs/Week
Credit for Theory	4
Credit for Practical	1
Duration of Semester Examination	2 Hrs
Duration of Internal Examination	30 Min
Semester Examination Marks	80 Marks
Internal Examination Marks	20 Marks
Differential Calculas	15h(1 hr/week)

Objective: The course is aimed at exposing the students to some basic notions in differential calculus .

Outcome: By the time students completes the course they realize wide ranging applications of the subject.

Unit- I

Successive differentiation- Expansions of Functions- Mean value theorems

Unit – II

Indeterminate forms – Curvature and Evolutes

Unit – III

Partial differentiation – Homogeneous functions- Total derivative

Unit – IV

Maxima and Minima of functions of two variables – Lagrange's Method of

multipliers –Asymptotes- Envelopes

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Text : Shanti Narayan and Mittal, Differential Calculus
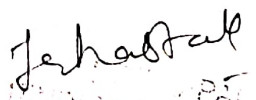
References:

- William Anthony Granville, Percey F Smith and William Raymond Longley;

- Elements of the differential and integral calculus

- Joseph Edwards , Differential calculus for beginners

- Smith and Minton, Calculus

- Elis Pine, How to Enjoy Calculus

- Hari Kishan ,Differential Calculus

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HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
B.Sc. 1ˢᵗ Year Mathematics
Semester – I
Practical Paper - I

Code:

Instruction	2 Hrs / Week
Duration of Exam	2 Hrs
Marks for Exam	50 Marks
Laboratory Course	45 Hrs

Differential Calculas

Practical Question Bank

Unit I

1. If $u = \tan^{-1} x$, prove that
$$(1+x^2)\frac{d^2u}{dx^2} + 2x\frac{du}{dx} = 0$$
and hence determine the values of the derivatives of u when $x = 0$

2. If
$$y = \sin(m \sin^{-1} x), \text{ show that}$$
$$(1-x^2)y_{n+2} = (2n+1)xy_{n+1} + (n^2 - m^2)y_n$$
and find $y_n(0)$.

3. If U_n denotes the nth derivative of $(Lx+M)/(x^2-2Bx+C)$., prove
$$\frac{x^2-2Bx+C}{(n+1)(n+2)}U_{n+2} + \frac{2(x-B)}{n+1}U_{n+1} + U_n = 0.$$

4. If $y = x^2 e^x$, then
$$\frac{d^n y}{dx^n} = \frac{1}{2}n(n-1)\frac{d^2 y}{dx^2} - n(n-2)\frac{dy}{dx} + \frac{1}{2}(n-1)(n-2)y.$$

5. Determine the intervals in which the function
$$(x^4 + 6x^3 + 17x^2 + 32x + 32)e^{-x}$$
is increasing or decreasing.

6. Separate the intervals in which the function
$$(x^2+x+1)/(x^2-x+1)$$
is increasing or decreasing.

7. Show that if $x > 0$,
(1) $x - \frac{x^2}{2} < \log(1+x) < x - \frac{x^2}{2(1+x)}.$

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8. Prove that

$$e^{ax} \sin bx = bx + abx^2 + \frac{3a^2b - b^3}{3!} \cdot x^3 + \ldots$$

$$+ \frac{(a^2 + b^2)^{\frac{1}{2}n}}{n!} x^n \sin\left(n \tan^{-1} \frac{b}{a}\right) + \ldots$$

9. Show that $\cos^2 x = 1 - x^2 + \frac{1}{3}x^4 - \frac{2}{45}x^4, \ldots \ldots$

10. Show that

$$e^{m \tan^{-1}x} = 1 + mx + \frac{m^2}{2!} x^2 + \frac{m(m^2 - 2)}{3!} x^3 + \frac{m^2(m^2 - 8)}{4!} x^4 + \ldots$$

UNIT-II

1. Find the radius of curvature at any point on the curves

   (i) $y = c \cosh(x/c)$ (*Catenary*).

   (ii) $x = a(\cos t + t \sin t), y = a(\sin t - t \cos t)$.

   (iii) $x^{\frac{2}{3}} + y^{\frac{2}{3}} = a^{\frac{2}{3}}$. (Astroid)

   (iv) $x = (a \cos t)/t, y = (a \sin t)/t$.

2. Show that for the curve
   $$x = a \cos \theta (1 + \sin \theta), y = a \sin \theta (1 + \cos \theta),$$
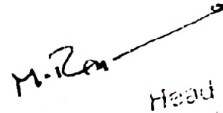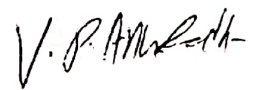
   the radius of curvature is, a, at the point for which the value of the parameter is $-\pi/4$.
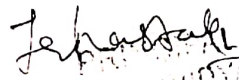
3. Prove that the radius of curvature at the point
   $(-2a, 2a)$ on the curve $x^2y = a(x^2 + y^2)$ is, $-2a$.

M. Ram

4. Show that the radii of curvature of the curve

$$x = ac^\theta (\sin\theta - \cos\theta), \quad y = ae^\theta (\sin\theta + \cos\theta),$$

and its evolute at corresponding points are equal.

5. Show that the whole length of the evolute of the ellipse

$$x^2/a^2 + y^2/b^2 = 1$$

is $4(a^2/b - b^2/a)$.

6. Show that the whole length of the evolute of the astroid

$$x = a\cos^3\theta, \quad y = a\sin^3\theta$$

is $12a$.

7. Evaluate the following :

(i) $\lim\limits_{x \to 0} \dfrac{xe^x - \log(1+x)}{x^3}$. (D.U. 1952) (ii) $\lim\limits_{x \to 0} \dfrac{x\cos x - \log(1+x)}{x^2}$.

(D. U. Hons. 1951, P.U. 1957)

(iii) $\lim\limits_{x \to 0} \dfrac{e^x \sin x - x - x^2}{x^3 + x\log(1-x)}$. (D.U. 1953) (iv) $\lim\limits_{x \to 0} \left\{ \dfrac{1}{x} - \dfrac{1}{x^2}\log(1+x) \right\}$.

(D.U. 1955)

8. If the limit of

$$\frac{\sin 2x + a\sin x}{x^3},$$

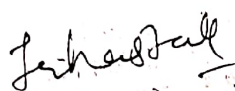as x tends to zero, be finite, find the value of a and the limit.

9. Determine the limits of the following functions :

(i) $x\log\tan x$, $(x \to 0)$.   (ii) $x\tan(\pi/2 - x)$, $(x \to 0)$.

(iii) $(a-x)\tan(\pi x/2a)$. $(x \to 0)$

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10. Determine the limits of the following functions :

i. $\dfrac{e^x - e^{-x} - x}{x^2 \sin x}$, $(x \to 0)$.

ii. $\dfrac{\log x}{x^3}$, $(x \to \infty)$.

iii. $\dfrac{1 + x \cos x - \cosh x - \log(1+x)}{\tan x - x}$, $(x \to 0)$.

iv. $\dfrac{\log(1+x)\log(1-x) - \log(1-x^2)}{x^4}$, $(x \to 0)$.

UNIT-III

1. If $z = xy\, f(x/y)$, show that

$$x\frac{\partial z}{\partial x} + y\frac{\partial z}{\partial y} = 2z,$$

2. If $z(x+y) = x^2 + y^2$, show that

$$\left(\frac{\partial z}{\partial x} - \frac{\partial z}{\partial y}\right)^2 = 4\left(1 - \frac{\partial z}{\partial x} - \frac{\partial z}{\partial y}\right).$$

3. If $z = 3xy - y^3 + (y^2 - 2x)^{\frac{3}{2}}$, verify that

$$\frac{\partial^2 z}{\partial x \partial y} = \frac{\partial^2 z}{\partial y \partial x} \quad \text{and} \quad \frac{\partial^2 z}{\partial x^2}\,\frac{\partial^2 z}{\partial y^2} = \left(\frac{\partial^2 z}{\partial x \partial y}\right)^2.$$

4. If $z = f(x + ay) + \varphi(x - ay)$, prove that

$$\frac{\partial^2 z}{\partial y^2} = a^2\frac{\partial^2 z}{\partial x^2}.$$

5. If $u = \tan^{-1}\dfrac{x^3 + y^3}{x - y}$, find

$$x^2\frac{\partial^2 u}{\partial x^2} + 2xy\frac{\partial^2 u}{\partial x \partial y} + y^2\frac{\partial^2 u}{\partial y^2}.$$

6. If $f(x, y) = 0$, $\varphi(y, z) = 0$, show that

$$\frac{\partial f}{\partial y} \cdot \frac{\partial \varphi}{\partial z} \cdot \frac{dz}{dx} = \frac{\partial f}{\partial x} \cdot \frac{\partial \varphi}{\partial y}.$$

7. If $x\sqrt{(1 - y^2)} + y\sqrt{(1 - x^2)} = a$, show that

$$\frac{d^2 y}{dx^3} = \frac{a}{(1 - x^3)^{\frac{3}{2}}}.$$

8. Given that

$$f(x, y) \equiv x^3 + y^3 - 3axy = 0, \text{ show that}$$

$$\frac{d^2 y}{dx^2} \cdot \frac{d^2 x}{dy^2} = \frac{4a^6}{xy(xy - 2a^3)^3}.$$

6

9. If u and v are functions of x and y defined by

$$x = u + e^{-v} \sin u, \quad y = v + e^{-v} \cos u,$$

prove that

$$\frac{\partial u}{\partial y} = \frac{\partial v}{\partial x}.$$

10. If $H = f(y - z, z - x, x - y)$; prove that,

$$\frac{\partial H}{\partial x} + \frac{\partial H}{\partial y} - \frac{\partial H}{\partial z} = 0.$$

UNIT-IV

1. Find the minimum value of $x^2 + y^2 + z^2$ when
   (i) $x + y + z = 3a.$
   (ii) $xy + yz + zx = 3a^2.$
   (iii) $xyz = a^3.$

2. Find the extreme value of xy when
   $$x^2 + xy + y^2 = a^2.$$

3. In a plane triangle, find the maximum value of
   $$\cos A \cos B \cos C.$$

4. Find the envelope of the family of semi-cubical parabolas
   $$y^2 - (x + a)^3 = 0.$$

5. Find the envelope of the family of ellipses
   $$x^2/a^2 + y^2/b^2 = 1,$$
   where the two parameter a, b, are connected by the relation
   $$a + b = c ;$$

c, being a constant.

6. Show that the envelope of a circle whose centre lies on the parabola $y^2 = 4ax$ and which passes through its vertex is the cissoid
   $$y^2(2a + x) + x^3 = 0.$$

7. Find the envelope of the family of straight lines $x/a + y/b = 1$ where a, b are connected by the relation
   (i) $a + b = c.$ (ii) $a^2 + b^2 = c^2.$ (iii) $ab = c^2,$

c is a constant.

8. Find the asymptotes of
$$x^3 + 4x^2y + 4xy^2 + 5x^2 + 15xy + 10y^2 - 2y + 1 = 0.$$

9. Find the asymptotes of
$$x^3 + 4x^2y + 4xy^2 + 5x^2 + 15xy + 10y^2 - 2y + 1 = 0.$$

10. Find the asymptotes of the following curves

    i. $xy(x+y) = a(x^2 - a^2)$.

    ii. $(x-1)(x-2)(x+y) + x^2 + x + 1 = 0.$

    iii. $y^3 - x^3 + y^2 + x^2 + y - x + 1 = 0.$

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HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
B.Sc. 1st Year Mathematics
Semester – II
Paper-II

Code:

Instruction

Theory Classes	**4 Hrs/Week**
Practical Classes	**2 Hrs/Week**
Credit for Theory	**4**
Credit for Practical	**1**
Duration of Semester Examination	**2 Hrs**
Duration of Internal Examination	**30 Min**
Semester Examination Marks	**80 Marks**
Internal Examination Marks	**20 Marks**

DSC-1B   DIFFERENTIAL EQUATIONS   BS: 204

Objective: The main aim of this course is to introduce the students to the techniques of solving differential equations and to train to apply their skills in solving some of the problems of engineering and science.

Outcomes: After learning the course the students will be equipped with the various tools to solve few types differential equations that arise in several branches of science.

Unit – I

Differential Equations of first order and first degree:

Exact differential equations – Integrating Factors – Change in variables – Total Differential Equations – Simultaneous Total Differential Equations – Equations of the form $dx/P = dy/Q = dz/R$

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Differential Equations first order but not of first degree: Equations Solvable for y – Equations Solvable for x – Equations that do not contain x (or y) – Clairaut's Equation

Unit – II

Higher order linear differential equations: Solution of homogeneous linear differential equations with constant coefficients – Solution of non-homogeneous differential equations $P(D)y = Q(x)$ with constant coefficients by means of polynomial operators when $Q(x) = bx^k$, be^{ax}, $e^{ax}V$, $b\cos(ax)$, $b\sin(ax)$.
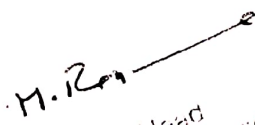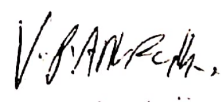
Unit – III

Method of undetermined coefficients – Method of variation of parameters – Linear differential equations with non constant coefficients – The Cauchy – Euler Equation
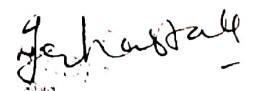
Unit – IV

Partial Differential equations- Formation and solution- Equations easily integrable – Linear equations of first order – Non linear equations of first order – Charpit's method – Non homogeneous linear partial differential equations – Separation of variables
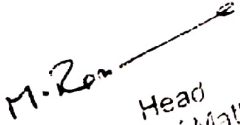
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Board of Studies in Mathematics
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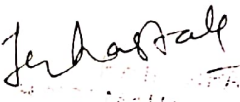**Text:** Zafar Ahsan, Differential Equations and Their Applications

References:

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- Ford, L.R, Differential Equations.

- Daniel Murray, Differential Equations

- S. Balachandra Rao, Differential Equations with Applications and Programs

- Stuart P Hastings, J Bryce McLead; Classical Methods in Ordinary Differential

- Equations

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HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
B.Sc. 1st Year Mathematics
Semester – II
Practical Paper- II

Code:

Instruction	2 Hrs / Week
Duration of Exam	2 Hrs
Marks for Exam	50 Marks
Laboratory Course	45 Hrs

Differential Equation

Practical Question Bank

Unit-I

Solve the following differential equations:

1. $y' = \sin(x+y) + \cos(x+y)$

2. $xdy - ydx = a(x^2 + y^2)dy$

3. $x^2 ydx - (x^3 + y^3)dy = 0$

4. $(y+z)dx + (x+z)dy + (x+y)dz = 0$

5. $y\sin 2x dx - (1+y^2 + \cos^2 x)dy = 0$

6. $y + px = p^2 x^4$

7. $yp^2 + (x-y)p - x = 0$

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8. $\dfrac{dx}{y-zx}=\dfrac{dy}{yz+x}=\dfrac{dz}{x^2+y^2}$

9. $\dfrac{dx}{x(y^2-z^2)}=\dfrac{dy}{y(z^2-x^2)}=\dfrac{dz}{z(x^2-y^2)}$

10. Use the transformation $x^2=u$ and $y^2=v$ to solve the equation

$axyp^2+(x^2-ay^2-b)p-xy=0$.

Unit-II

Solve the following differential equations:

1. $D^2y+(a+b)Dy+aby=0$

2. $D^3y-D^2y-Dy-2y=0$

3. $D^3y+Dy=x^2+2x$

4. $y''+3y'+2y=2(e^{-2x}+x^2)$

5. $y^{(5)}+2y'''+y'=2x+\sin x+\cos x$

6. $(D^2+1)(D^2+4)y=\cos\dfrac{x}{2}\cos\dfrac{3x}{2}$

7. $(D^2+1)y=\cos x+xe^{2x}+e^x\sin x$

8. $y''+3y'+2y=12e^x$

9. $y''-y=\cos x$

10. $4y''-5y'=x^2e^x$

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Unit-III

Solve the following differential equations:

1. $y'' + 3y' + 2y = xe^x$

2. $y'' + 3y' + 2y = \sin x$

3. $y'' + y' + y = x^2$

4. $y'' + 2y' + y = x^2 e^{-x}$

5. $x^2 y'' - xy' + y = 2\log x$

6. $x^4 y''' + 2x^3 y'' - x^2 y' + xy = 1$

7. $x^2 y'' - xy' + 2y = x \log x$

8. $x^2 y'' - xy' + 2y = x$

Use the reduction of order method to solve the following homogeneous equatic whose one of the solutions is given:

9. $y'' - \dfrac{2}{x} y' + \dfrac{2}{x^2} y = 0$. $y_1 = x$

10. $(2x^2 + 1) y'' - 4xy' + 4y = 0$. $y_1 = x$

Unit-IV

1. Form the partial differential equation . by eliminating the arbitrary constants from $z = (x^2 + a)(y^2 + b)$.

2. Find the differential equation of the family of all planes whose members are all at a constant distance r from the origin.

3. Form the differential equation by eliminating arbitrary function F from

$F(x^2 + y^2, z - xy) = 0$.

Solve the following differential equations:

4. $x^2(y - z)p + y^2(z - x)q = z^2(x - y)$

5. $x(z^2 - y^2)p + y(x^2 - z^2)q = z(y^2 - x^2)$

6. $(p^2 - q^2)z = x - y$
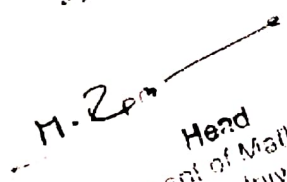
7. $z = px + qy + p^2q^2$
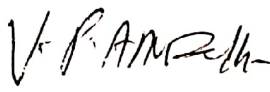
8. $z^2 = pqxy$
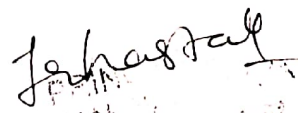
9. $z^2(p^2 + q^2) = x^2 + y^2$

10. $r + s - 6t = \cos(2x + y)$

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B.Sc Ist Year Mathematics
Semester – I & II
Theory Question Paper Pattern

Time: 3 hrs   Max. Marks: 80

SECTION A

I Attempt any Four of the following (Short Answer Questions)   **4 X 5 = 20 Marks**

1. A Question from Unit I
2. A Question from Unit I
3. A Question from Unit II
4. A Question from Unit II
5. A Question from Unit III
6. A Question from Unit III
7. A Question from Unit IV
8. A Question from Unit IV

SECTION B

II Attempt all the Questions (Long Answer Questions)   **4 X 15= 60 Marks**

9 (a) A Question from Unit I
            (OR)
   (b) A Question from Unit I

10. (a). A Question from Unit II
            (OR)
   (b). A Question from Unit II

11 (a) A Question from Unit III
            (OR)
   (b) A Question from Unit III

12 (a) A Question from Unit IV
            (OR)
   (b) A Question from Unit IV

Note : Question Paper Pattern is subjected to change as prescribed by Osmania Universtiy in the later stages.

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B.Sc. 1st Year Mathematics
Semester – I & II

Practical Model Question Paper

Time: 3Hrs   Total Marks: 50

Pattern of practical Questions   (4X7½=30Marks)

I   Attempt all Questions

    1 (a) A Question from Unit I
          (OR)
    (b) A Question from Unit I

    2 (a). A Question from Unit II
          (OR)
    (b). A Question from Unit II

    3 (a) A Question from Unit III
          (OR)
    (b) A Question from Unit III

    4 (a) A Question from Unit IV
          (OR)
    (b) A Question from Unit IV

II   Record   10 M

III   Vivavoce   10 M

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Hindi Mahavidyalaya

(Autonomous)

Mathematics Department

Sem -I/II

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2	V. Vimaladevi Andra Mahila Sabha Arts and Science College Osmania University Campus.	
3	P. Jhansi Rani RBVRR Women's college Barkatpura	
4	Dr. Vasudeva Rao. K. Bhavan's Ramakrishna Vidyalay Sainikpuri, Secunderabad	
5	Dr. V. Srinivas P.G. College Saifabad, Hydrabad.	
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7	Dr. Padma Anuradha, Government Women's College, Begumpet.
8	Dr. Uma Dixit Department of mathematics, P. G. College, Secunderabad.

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