INTERNAL ASSIGNMENT QUESTIONS
B.A.(MATHS & STATS) I YEAR

ANNUAL - 2026

PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION
(RECOGNISED BY THE DISTANCE EDUCATION BUREAU, UGC, NEW DELHI)

OSMANIA UNIVERSITY
(A University Accredited with A+ by the NAAC - A University with Potential for Excellence,
Hyderabad – 7 Telangana State

DIRECTOR
Prof. N.Ch. Bhatracharyulu
Hyderabad – 7, Telangana State

PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION

OSMANIA UNIVERSITY, HYDERABAD-500 007

INTERNAL ASSIGNMENT QUESTION PAPER

COURSE : B.A.(Maths & Applied Maths) I year

Paper : I Subject : Applied Mathematics Year 2026

Total Marks: 30

Section – A

UNIT – I : Answer the following short questions (each question carries three marks) 5x3=15

1 write parallelogram Law of forces.

2 Find the resultant of two parallel forces acting upon a rigid body.

3) prove that the work done in Stretching an elastic

4 String of natural length l and modulus λ from

5 tension T_1 to tension T_2 is $\frac{l}{2\lambda}(T_2^2 - T_1^2)$

4) write Motion of two particles connected by a String

5) Find the length of the pendulum which will oscillate 56 times in 55 seconds.

Section – B

UNIT – II : Answer the following Questions (each question carries Five marks) 3x5=15

The resultant of two forces P and Q acting at a certain

(1) angle is F, and that of P, R acting at the same angle is also F, The resultant of Q, R again acting

2 at the same angle is also G, prove that-

3 a) if $P+Q+R=0$ Then $G=F$

b) if $P+Q+R\neq 0$, Then $P=\sqrt{F^2+QR}=\frac{QR(Q+R)}{Q^2+R^2-G^2}$

Name of the Faculty :

Dr. M. Ramesh

Dept. Mathematics.

(2) A particle moving with S.H.M in a st. line has velocities v_1, v_2 at distances x_1, x_2 from the centre of its path show that- if T be its period, Then $T=2\pi\sqrt{\frac{x_1^2-x_2^2}{v_2^2-v_1^2}}$

(3) Find the centroid of the surface formed by the revolution of on loop of the lemniscate $r^2=a^2\cos 2\theta$

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INTERNAL ASSIGNMENT QUESTION PAPER

COURSE : B.A.(Maths & Applied Maths) I year

Paper : I Subject : Differential equations, Abstract Algebra and vector calculus Year 2026.

Total Marks: 30

Section – A

UNIT – I : Answer the following short questions (each question carries three marks) 5x3=15

1 Solve $\frac{dy}{dx} - y\tan x = y^2 \sec x$

2 Solve $x^2p^2 + 3xyp + 2y^2 = 0$

3 If $(G, *)$ is a group then (i) the identity is unique (ii) to each $a \in G$, its inverse is unique.

4 Let $\sigma, \tau \in S_5$, where $\sigma = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 2 & 3 & 1 & 5 & 4 \end{pmatrix}$, $\tau = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 5 & 4 & 3 & 1 & 2 \end{pmatrix}$. Find $\sigma\tau$, $\sigma\tau^2$, $\sigma^2\tau$, $\sigma^{-1}\tau$

5 Show that $\bar{v} = (x^2 - yz)\hat{i} + (4y + z^2x)\hat{j} - (2xz + 4z)\hat{k}$ is solenoidal.

Section – B

UNIT – II : Answer the following Questions (each question carries Five marks) 3x5=15

1 Solve by the method of variation of parameters

2 $\frac{d^3y}{dx^3} + (1 - \cot x)\frac{dy}{dx} - \cot x = \sin^2 x$

3. 2. Every group is isomorphic to some permutation group (CAYLEY'S Theorem)

3. If $\bar{v} = 3x^2\hat{i} + 5xy\hat{j} + xyz\hat{k}$ find $div(\bar{v})$ and $curl(\bar{v})$ at $(1, 2, 3)$.

Name of the Faculty : Dr. B. RAJU

Dept. Mathematics

PRO.RAM REDDY CENTRE FOR DISTANCE EDUCATION

COURSE B.A(Statistics) I Year

Paper : I Probability and distributions Total Marks :20M

SECTION - A

I Answer the following short iuestions (each question carries.two marks) 5X2=10M

1. Define central tendancy . Explain with merits and demirits.
2. Define central and non central moments. Express non central moments interms of central moments .
3. Obtain the MGF of exponential distribution. Find the mean and variance using it.
4. Derive moment generating function for binomial distribution.
5. Explain discrete uniform distribution.

SECTION – B 2X5=10M

1. that the Poisson Distribution is the limiting case of Negative Binomial 2. distribution.
2. Define Normal distribution . State and prove any of five properties of normal distributions.