PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION

(Recognised by the Distance Education Bureau, UGC, New Delhi)

OSMANIA UNIVERSITY, HYDERABAD – 500 007

(A University Accredited with "A+" by the NAAC — A University with Potential for Excellence)

INTERNAL ASSIGNMENT QUESTIONS

B.A. (Maths & Stats) — I YEAR

SUPPLEMENTARY - 2026

Dear Students,

Every student has to write and submit an Assignment for each paper compulsorily. The marks awarded will be forwarded to the Examination Branch, OU for inclusion in the marks memo. If the student fails to submit Internal Assignments before the stipulated date, the internal marks will not be added in the final marks memo under any circumstances. Assignments will not be accepted after the stipulated date. Only HAND WRITTEN ASSIGNMENTS (with blue pen) will be accepted and valued; printed, photocopied or typed assignments will not be accepted at any cost.

Methodology for writing the Assignments (Instructions):

- First read the subject matter in the course material that is supplied to you.
- If possible read the subject matter in the books suggested for further reading.
- You are welcome to use the PGRRCDE Library on all working days for collecting information on the topic of your assignments. (10.30 am to 5.00 pm).
- Give a final reading to the answer you have written and see whether you can delete unimportant or repetitive words.
- The cover page of each theory assignment must have information as given in the FORMAT below.

FORMAT

1.	NAME OF THE STUDENT	:
2.	ENROLLMENT NUMBER	:
3.	NAME OF THE COURSE	:
4.	SEMESTER / YEAR	:
5.	TITLE OF THE PAPER	:
6.	DATE OF SUBMISSION	:

- Write the above said details clearly on every subject assignment paper, otherwise your paper will not be valued.
- Tag all the assignment papers subject-wise and submit them at the concerned counter.

Submit the assignments on or before **30/11/2026** at the concerned counter at PGRRCDE, OU on any working day and obtain a receipt.

DIRECTOR **Prof. Dr. N.Ch. Bhatracharyulu**

PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION

(Recognised by the Distance Education Bureau, UGC, New Delhi)

OSMANIA UNIVERSITY, HYDERABAD – 500 007

(A University Accredited with "A+" by the NAAC — A University with Potential for Excellence)

INTERNAL ASSIGNMENT QUESTION PAPER

COURSE : B.A. (Maths & Stats) — I Year

Paper : I Subject : Differential Equations, Abstract Algebra and Vector Calculus

Total Marks: 30

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

1. Solve $y = x + a\tan^{-1}p$.
2. Solve $d^2y/dx^2 + 6\,dy/dx + 9y = 0$.
3. Define * on Z by a*b = a+b-1. Is it commutative? Is it associative?
4. Let $\sigma, \tau \in S_5$, where $\sigma = (1\ 2\ 3\ 4\ 5\ /\ 2\ 3\ 1\ 5\ 4)$, $\tau = (1\ 2\ 3\ 4\ 5\ /\ 5\ 4\ 3\ 1\ 2)$. Find $\sigma\tau$ and $\sigma\tau^2$.
5. Find the unit normal to the surface $xy^3z^2 = 4$ at (-1,-1,2).

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

1. Solve the equation $d^2y/dx^2 + 4dy/dx + 4y = 4x^2 + 6e^x$ using undetermined coefficients.
2. Define the fundamental theorem of homomorphisms.
3. Evaluate $\oint c\,(x^2-xy^2)dx + (y^2-2xy)dy$ where 'c' is the square with the vertices (0,0), (2,0), (2,2), (0,2).

Name of the Faculty : Dr. B. Raju, Nizam College
Dept. Mathematics

PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION

(Recognised by the Distance Education Bureau, UGC, New Delhi)

OSMANIA UNIVERSITY, HYDERABAD – 500 007

(A University Accredited with "A+" by the NAAC — A University with Potential for Excellence)

INTERNAL ASSIGNMENT QUESTION PAPER

COURSE : B.A. (Maths & Stats) — I Year

Paper : I Subject : Applied Mathematics

Total Marks: 30

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

1. Write parallelogram law of forces theorem.

2. Two unlike parallel forces P and Q of magnitude 17 kgs and 25 kgs are working at a distance of 20 cm apart. Find their resultant and the distance it acts from the 17 kgs force.

3. Prove that the work done in stretching an elastic string of natural length l and modulus λ from tension T_1 to tension T_2 is $(1/2\lambda)(T_2^2 - T_1^2)$.

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

5. Write the principle of conservation of work and energy.

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

1. The resultant of two like parallel forces P, Q passes through a point O, when P is increased by R and Q by S, the resultant still passes through O, and also when Q, R replace P, Q respectively, prove that $R = Q^2/P$, $S = Q^3/P^2$ and $S = R(Q-R)^2/(P-Q)$.

2. Find the position of the C.G of the arc of the curve x^(2/3) + y^(2/3) = a^(2/3) lying in the first quadrant.

3. If the central force varies as the distance from a fixed point, find the orbit.

Name of the Faculty : Dr. M. Ramesh

Dept. Mathematics

PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION

(Recognised by the Distance Education Bureau, UGC, New Delhi)

OSMANIA UNIVERSITY, HYDERABAD – 500 007

(A University Accredited with "A+" by the NAAC — A University with Potential for Excellence)

INTERNAL ASSIGNMENT QUESTION PAPER

COURSE : B.A. (Maths & Stats) — I Year

Paper : I Subject : Probability and Distributions

Total Marks: 20

Section – A : Answer the following short questions (each question carries two marks) 5x2=10

1. The following table shows the distribution of the number of students per teacher in 750 villages. Compute the Arithmetic mean, median and mode.

Students	3	6	9	12	15	18	21	24	27	30
Frequency	7	46	165	195	189	89	28	19	9	3

2. Define Central and Non-Central moments. Express non central moments in terms of central moments. What is the effect of origin and scale on central moments.

3. Define Yule's coefficient of association and the coefficients of colligation. Establish the relation between the two coefficients.

4. A discrete random variable has the following probability distribution. Find the mean, variance of X. Also find $P(X \leq 2)$, $P(X \geq 4)$ and $P(1 \leq X \leq 5)$.

X	0	1	2	3	4	5	6
P(X)	0.08	0.12	0.20	0.25	0.18	0.11	0.06

5. Obtain the MGF of exponential distribution. Find the mean and variance using it.

Section – B 2x5=10

1. State and prove (i) Chebychev's inequality (ii) Weak law of large numbers (iii) Central Limit theorem (CLT). Also give example for each of them.

2. (i) Prove that the Poisson Distribution is the limiting case of Negative Binomial distribution. (ii) Define Normal distribution. State and prove any five properties of Normal distributions.

Name of the Faculty : _____

Dept. Statistics