INTERNAL ASSIGNMENT QUESTIONS

B.A.Maths & Stats III YEAR

ANNUAL EXAMINATIONS MARCH / APRIL - 2019

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. Chintha Ganesh
Hyderabad – 7, Telangana State

PROF.G.RAM REDDY CENTRE FOR DISTANCE EDUCATION
OSMANIA UNIVERSITY, HYDERABAD – 500 007

Dear Students,

Every student of B.A. III year has to write and submit **Assignment** for each paper compulsorily. Each assignment carries **20 marks.** The marks awarded to you will be forwarded to the Controller of Examinations, OU for inclusion in the University Examinations marks. If you fail to submit Internal Assignments before the stipulated date, the internal marks will not be added to University examination marks under any circumstances. The assignments will not be accepted after the stipulated date. **The assignments have to be submitted by the candidates in the same academic year when they pay the examination fee for exams in first instance only.**

You are required to **pay Rs.300/- fee** towards Internal Assignment through online and submit the receipt with the assignment answers scripts at the concerned counter on or before **20-03-2019** and obtain proper submission receipt.

ASSIGNMENT WITHOUT FEE WILL NOT BE ACCEPTED :

Assignments on Printed / Photocopy / Typed papers will not be accepted and will not be valued at any cost. Only hand written Assignments will be accepted and valued.

Methodology for writing the Assignments (Instructions) :

1. First read the subject matter in the course material that is supplied to you.

2. If possible read the subject matter in the books suggested for further reading.

3. You are welcome to use the PGRRCDE Library on all working days including Sunday for collecting information on the topic of your assignments.
   (10.30 am to 5.00 pm).

4. Give a final reading to the answer you have written and see whether you can delete unimportant or repetitive words.

5. The cover page of the each theory assignments must have information as given in FORMAT below.

<u>**FORMAT**</u>

1. NAME OF THE STUDENT   :
2. ENROLLMENT NUMBER   :
3. NAME OF THE COURSE   :
4. NAME OF THE PAPER   :
5. DATE OF SUBMISSION   :

6. Write the above said details clearly on every subject assignments paper, otherwise your paper will not be valued.

7. Tag all the assignments paper wise and submit them in the concerned counter.

8. Submit the assignments on or before **20-03-2019** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

Prof. K. Bhaskar   **Prof.Chintha Ganesh**
Joint Director   **Director**

B.A. III Yr.

Course : B.A. III-Year (Mathematics)

Paper : III   Title : Rings and Linear Algebra   Year: I / II / III

Section – A

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

1. Every field is an integral Domain.

2. Find the real zeros of the polynomial $x^2 + x - 6$.

3. Find the eigen Values of $A = \begin{bmatrix} 2 & 4 \\ 1 & 5 \end{bmatrix}$.

4. Let V be an IPS. over F. $\|x+y\| \leq \|x\| + \|y\|$, $\forall x, y \in V$

5. Find the rank of the matrix $A = \begin{bmatrix} 1 & -1 & 2 \\ 2 & -2 & 4 \\ 3 & 3 & 6 \end{bmatrix}$

Section – B

UNIT – II : Answer the following Questions (each question carries Five marks)   2x5=10

1. Let $T : V \to W$ be a L.T from the Vectorspace V to the Vectorspace W. then nullity(T) + rank(T) = dim$V$.

2. Find the eigen Values and eigen Vectors. of the matrix $A = \begin{bmatrix} 2 & 4 \\ 1 & 5 \end{bmatrix}$

Name of the Faculty : V. Venkateshwar

Dept. of Mathematics.

B.A - III Yr.

INTERNAL ASSIGNMENT- 2018 - 2019

Course : B.A. Mathematics,   Mathematics

Paper : IV   Title : Numerical Analysis   Year: I / II / III

Section – A

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

1. Explain Bisection method.
2. Define Lagrange interpolation.
3. a real root of $x - \cos x = 0$ by Newton-Raphson method.
4. Evaluate $\int_{0}^{1} \frac{1}{1+x^2} dx$ using simpson's $\frac{3}{8}$ rule.
5. State the Range-Kutta methods.

Section – B

UNIT – II : Answer the following Questions (each question carries Five marks)   2x5=10

1. Using Ramanujan's method, obtain the first eight Convergents of
   $x + x^3 = 1$
2. Using Taylor Series solve $\frac{dy}{dx} = xy + y^2$; $y(0) = 1$, at $x = 0.1, 0.2, 0.3$

Name of the Faculty :
Ramalingaiah, Kadari.
Dept. of Mathematics
UCE(J), OU,

Statistics

INTERNAL ASSIGNMENT- 2018 - 2019

Course : B.A-IIIy Math&Stats.

Paper : III   Title : Applied Statistics   Year: I / II / III

Section – A

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

1 Define ANOVA.

2 Define Cochran's Theorm.

3 Define Randomisation

4 Define Replication

5 Define SQC.

Section – B

UNIT – II : Answer the following Questions (each question carries Five marks)   2x5=10

1. Explain Expectation Sum of Squares due to treatments in one way ANOVA.

2. Explain Expectation Sum of squares due to Blocks in RBD.

Name of the Faculty : D.MANOHAR

Dept. BA Mathematics and Statistics.

Statistics

Paper- IV

INTERNAL ASSIGNMENT- 2018 - 2019

Course : B.A. IIIY (Maths & stats)

Paper : IV   Title : Applied Statistics   Year: I / II / III

Section – A

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

1   Define Simple Random Sampling with replacement and without replacement

2   Discuss the various Components of Time series.

3   Explain Ratio to trend method. (steps involved).

4   S.T Time Reversal test. Fisher's index number satisfies

5   Define Demand and supply curves

Section – B

UNIT – II : Answer the following Questions (each question carries Five marks)   2x5=10

1. Discuss the Principle steps involved in Sample survey.

2. Index numbers are the Economic Barometers Explain also discuss briefly the problems involved in the construction of an Index number.

Name of the Faculty : Dr. D. Lalitha Devi

Dept. Statistics

BA (Maths) III Yr

INTERNAL ASSIGNMENT- 2018 - 2019

Course : __B.A (III year)__

Paper : __III__   Title : __APPLIED MATHEMATICS__ Year: I / II / III

Section – A

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

1. Find Laplace transform of the function $f(t) = \begin{cases} \frac{1}{T}, & 0 < t < I \\ 1, & t > 1 \end{cases}$

2. Obtain the Fourier series expansion of the function $f(x) = e^x \sin(q_2\pi)$

3. Find the finite Fourier cosine transforms of $f(x) = \sin ax$ in $(0, \pi)$

4. Show that the function $f(z) = x^2 y + i y^2$ is continuous every where but is not analytic any where.

5. Using method of separation of variable- solve the equation
$$\frac{\partial u}{\partial x} = 3 \frac{\partial u}{\partial y} + u, \quad u(x,0) = e^{5x}$$

Section – B

UNIT – II : Answer the following Questions (each question carries Five marks)   2x5=10

1. Solve by Laplace transform method. $y'' + y' - 2y = t$, $y(0)=1$, $y'(0)=0$.

2. A tightly stretched string which fixed end points $x=0$ and $x=1$ is initially at rest in its equilibrium position. If it is set vibrating by giving to each of its point a velocity

Name of the Faculty :

Dr. P. Thirupathi

$\frac{\partial y}{\partial t} = 3(1x - x^2)$ at $t=0$, find $y(x,t)$.

Dept. __Mathematics__

BA III yr
Appl. Maths
Paper IV

INTERNAL ASSIGNMENT- 2018 - 2019

Course : B. A(Maths & Stats)

Paper : Applied Maths IV   Title : Differential. Geometry   Year: I/II/III

Section – A

UNIT -- I : Answer the following short questions (each question carries two marks)   5x2=10

① Derive Equation of tangent line to a curve at a point

② Define Normal plane at a point, ~ principal normal and Bi-normal

③ Prove that the curve $x = au$, $y = bu^2$, $z = cu^3$ is a helix iff
$$3ac = \pm 2b^2$$

④ Calculate the fundamental magnitudes and the normal to the Surface $2z = ax^2 + 2hxy + by^2$.

⑤ Show that if L, M, N vanish where on a Surface, then the Surface is a part of a plane

Section – B

UNIT – II : Answer the following Questions (each question carries Five marks)   2x5=10

① Derive Equation of Osculating plane (plane of Curvature)

⑤ Find the equation for the principal curvatures, and the differential equations of the lines of Curvatures for the Surface $z = c \tan^{-1}\left(\frac{y}{x}\right)$

Name of the Faculty : Dr. A. Srisailam

Dept. Mathematics, OUCS