

2016 BATCH
I MCA
I SEMESTER
REGULAR EXAMINATION
DEC-2016
QUESTION PAPERS
ACADEMIC YEAR
2016-17



Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16MCA105

MCA - I Semester Regular Examinations, Dec-2016/Jan-2017
ACCOUNTS AND FINANCIAL MANAGEMENT

Time: 3 hours

Max Marks: 60

Question Paper Consists of Part-A and Part-B

Answering the question in Part-A is Compulsory, Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a). State the advantages of Double Entry System.
- (b) What is the importance of Trial Balance?
- (c) Over Capitalization and Under Capitalization.
- (d) What is Marginal Costing?
- (e) What is Flexible Budget?
- (f) What is Master File?

[2+2+2+2+2+2]

PART-B

2. Journalise the following Transactions.

[6+6]

- (a)
 - i) Ganesh Commenced Business with cash 300000/-
 - ii) Purchase goods from Hari 40000/-
 - iii) Goods sold for cash 10000/-
- b)
 - i) Electricity bill paid 3000/-
 - ii) Paid cash to Hari 38000/- for full settlement.
 - iii) Sold goods to Siva 6000/-.

3. Prepare final accounts of **Radhika Enterprises** for the year ending 31-12-2015 from the following information

[4+4+4]

Particulars	Debit Rs.	Credit Rs.
Capital		20000
Sundry Debtors	5400	
Drawings	1800	
Machinery	7000	
Sundry Creditors		2800
Wages	10000	
Purchases	19000	
Opening Stock	4000	
Bank Balance	3000	
Carriage Expenses	300	
Salaries	1000	
Rent and Taxes	900	
Sales		29000
Interest Received		200
Commission received		400
Total	52400	52400

Adjustments:

- The value of stock on 31-12-2015 was Rs.36, 000.
 - Commission receivable Rs.1, 875.
 - Provide interest on capital at 10% per annum.
 - Provide interest on drawings at 5% per annum.
- What do you mean by Financial Management and Explain its Nature and scope?
 - Distinguish between Absorption Costing and Marginal Costing?
 - Define Budgeting and explain the types of budgets?
 - Discuss the Process of Document files and output generated in computerized accounting system?



Subject Code: R16MCA104

MCA - I Semester Regular Examinations, Dec-2016/Jan-2017
PROBABILITY AND STATISTICAL APPLICATIONS

Time: 3 hours

Max. Marks:60

Question Paper Consists of **Part-A** and **Part-B**

Answering the question in **Part-A** is Compulsory, Four Questions should be answered from **Part-B**

All questions carry equal marks of 12.

PART-A

1. (a) Write Axioms of Probability

(b) A random variable X has the density function $f(x) = \begin{cases} \frac{1}{4}, & -2 < x < 2 \\ 0, & \text{otherwise} \end{cases}$ Obtain $P(X < 1)$.

(c) If the size of the sample is 5 and size of the population is 2000 then the correction factor is

(d) Describe about Typ - I Error

(e) If $\bar{x} = 47.5, \mu = 42.1, S = 8.4, n = 25$ then t is

(f) A random sample of size 100 has a standard deviation of 5. What can you say about maximum error with 95 % confidence.

[2M+2M+2M+2M+2M+2M]

PART-B

2. (a) A bag contains 12 balls numbered from 1 to 12. If a ball is taken at random, what is the probability of having a ball with a number which is multiple of either 2 or 3.

[6M]

(b) A Business man goes to hotels Dolphine, Green Park, Taj, 20%, 50%, 30% of the times respectively. It is known that 5%, 4%, 8% of the rooms in Dolphine, Green Park, Taj hotels have faulty plumbing. What is the probability that business man's room having faulty, plumbing is assigned to hotel Taj.

[6M]

3. (a) A random variable X has the density function $f(x) = \begin{cases} \frac{1}{4}, & -2 < x < 2 \\ 0, & \text{otherwise} \end{cases}$

Obtain (i) $P|X| > 1$ (ii) $P(2X + 3 > 5)$

[6M]

(b) If a random variable has a poisson distribution such that $P(1) = P(2)$, what is $P(4)$

[6M]

4. If the population is 3,6,9,15,27

(a) List all possible samples of size 3 that can be taken without replacement from the finite population

[6M]

(b) Calculate mean and S.D of sampling distribution of means

[6M]

5. Let $S = \{1, 5, 6, 8\}$, Find the probability distribution of the sample mean for random sample of size 2 drawn without replacement. [12M]

6. Two are drawn from two normal populations. From the following data, test whether the two whether the two samples have the same variances at 5% level. (12M)

Sample I	60	65	71	74	76	82	85	87		
Sample II	61	66	67	85	78	63	85	86	88	91

7. At a railway station, only one train is handled at a time. The railway yard is sufficient only for 2 trains to wait, while the other is given signal to leave the station. Trains arrives at the station at an average rate of 6 per hour and the railway station can handle them on an average of 6 per hour. Assuming Poisson arrival and exponential service distribution
- (a) find the probability for the numbers of train in the system
- (b) find the average waiting time of a new train coming into the yard. If the handling rate is doubled, how will the above result get modified.

[6M+6M]



Subject Code: R16MCA103

MCA - I Semester Regular Examinations, Dec-2016/Jan-2017

MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

Time: 3 hours

Max Marks: 60

Question Paper Consists of Part-A and Part-B

Answering the question in Part-A is Compulsory, Four Questions should be answered from Part-B.

All questions carry equal marks of 12.

PART-A

1. (a) Verify whether $(\sim PVQ) \rightarrow P$ is a Tautology or not.
- (b) Define Inverse Function and explain with an example.
- (c) What is a Monoid. Explain with an example.
- (d) Explain Product Rule with an example.
- (e) What are the values of a_2, a_3 if a Sequence is defined as $a_n = a_{n-1}^2$ and $a_1 = 2$?
- (f) What is meant by Planar Graph?

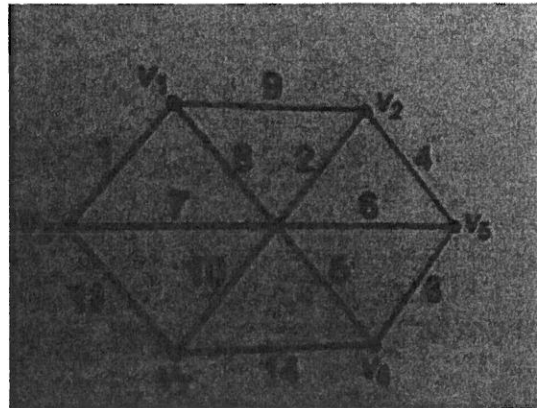
[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) Explain the necessity of Automatic Theorem Proving by stating the necessary Rules.
- (b) What are the different Normal Forms available. How do u convert a Well Formed Formula into the above Normal Forms. [6+6]
3. (a) Let $X = \{1, 2, 3\}$ and the relation $R = \{(1, 2), (2, 3), (3, 4)\}$. Find the transitive closure of R.
- (b) Let $A = \{1, 2, 3, 4, 6, 12\}$. On A, define the relation R by i) aRb if and only if a divides b Draw the Hasse diagram for this relation. [6+6]
4. (a) If $(G, *)$ is an abelian group, show that $(a * b)^2 = a^2 * b^2$.
- (b) Prove that every distributive lattice is modular. [6+6]
5. (a) In how many ways can the letters of the word CORRESPONDENTS can be arranged so that i) There are exactly two pairs of consecutive identical letters? ii) There are at least three pairs of consecutive identical letters?
- (b) In how many way can 6 men and 6 women be seated in a row i) If any person may sit next to any other? ii) If men and women must occupy alternate seats? [6+6]
6. (a) Solve the Recurrence Relation $a_n = a_{n-1} + 5$ where $a_0 = 3$ using the Method of Substitution
- (b) Find the recurrence relation and the initial condition for the sequence 0, 2, 6, 12, 20, 30, 42, Hence find the general terms of the sequence. [6+6]

7. (a) Find the Minimum Spanning Tree for the Graph Shown below.



(b) Write DFS algorithm and discuss with an example.

[7+5]



Subject Code: R16MCA102

MCA - I Semester Regular Examinations, Dec-2016/Jan-2017

COMPUTER ORGANIZATION

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory
Four Questions should be answered from Part-B

PART-A

1. (a) Give equivalent decimal number for $1101\ 0111_2$
- (b) Give truth Table for NAND gate
- (c) What are the features of RISC processor?
- (d) What are the advantages of Three State Buffers?
- (e) What is Control Memory?
- (f) What is Auxiliary memory?

[2+2+2+2+2+2]

PART-B

4X 12 = 48

- | | |
|---|----|
| 2. (a) Draw and explain Block diagram Computer and its functional units | 6M |
| (b) explain Booth multiplication Algorithm | 6M |
| 3. (a) Explain NAND gate Decoder | 6M |
| (b) Draw and explain J-K flip flop with Truth Table | 6M |
| 4. (a) Explain Common Bus system | 6M |
| (b) Explain Timing and Control | 6M |
| 5. (a) Explain control memory | 6M |
| (b) Explain conditional branching in micro program control unit | 6M |
| 6. (a) Discuss different types of memories | 6M |
| (b) Explain Asynchronous data transfer | 6M |
| 7. (a) Discuss addressing modes | 6M |
| (b) Discuss instruction formats | 6M |

Subject Code: R16MCA101

MCA - I Semester Regular Examinations, Dec-2016/Jan-2017

C PROGRAMMING AND DATA STRUCTURES

Time: 3 hours

Question Paper Consists of Part-A and Part-B

Max Marks: 60

Answering the question in Part-A is Compulsory, Four Questions should be answered from Part-B.

All questions carry equal marks of 12.

PART-A

1.

- Compare Break and continue in terms of their functions
- What is the difference between a structure and a union?
- How does an append mode differ from a write mode in file
- Write an algorithm for exchange the values of two variables a and b assigned to them
- Write the best, Average and worst case complexities of quick sort
- What is meant by diagraph? Define the terms in-degree and out-degree with respect to a graph

[2+2+2+2+2+2]

PART-B

4X 12 = 48

- Define a data type and explain in detail the various types with an example [6+6]
 - Write a program to find the sum of the following series
 $1+3^2+5^2+7^2+.....N^2$ where N is a odd number
- Explain the following control structures [6+6]
 - Nested if
 - goto
 - Switch
 - Write a program that reads a string and determine whether the string is a palindrome or not
- Define pointer. Write a program to explain the usage of pointer. List the troubles in using pointers
 - Discuss the parameter passing techniques of functions with an example [6+6]
- Define structure. How to declare and access members of a structure. [4]
 - Write a program to get characters from the user and convert the characters into upper case and store it in a file and then to copy the contents in another file [8]
- Sort the following numbers by quick sort algorithm [6+6]
70 30 40 20 10 90 80 60 50 100
 - Write the Robin Karp Algorithm
- Write algorithm/program for the following [6+6]
 - Insert a node at front of doubly linked list
 - Delete the last node from a circular doubly linked list
 - How would you convert an infix expression to its post fix equivalent? Explain your algorithm for the expression $A/B - C * D/E + F/G$

