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

Subject Code: R16MCA101

MCA - I Semester Regular and Supplemntary Examinations, Dec-2018.

C PROGRAMMING AND DATA STRUCTURES

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, each question carry equal marks of 12.

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PART-A

1.

a) Write the different types of operators in C language
b) What is the difference between while and do-while statement?
c) Write the significance of call by reference
d) What are the different file I/O operations?
e) State the different types of sorting techniques
f) What is linked list?

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

PART-B

4 X 12 = 48

2. a) Explain the different kinds of control structures in C with examples
   b) Write a C program to find the sum of numbers from 1 to N.

3. a) Explain the different kinds of loops available in C with examples
   b) Explain any 4 string functions with suitable example

4. a) What is a storage class? Discuss in detail the difference between all storage classes with suitable examples
   b) Write a program to multiply 2 Matrices

5. a) Write a C function to find the largest number stored in an array.
   b) Write a 'C' program to create a student file, which store details of students. (Student Name, Roll No., marks in '3' subjects.)

6. a)Explain quick sort with an example
   b)Explain robin karp algorithm

7. a) Explain how insertion and deletion can be done in linked list
   b) Explain prims algorithm

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Subject Code: R16MCA102

MCA - I Semester Regular and Supplementary Examinations, Dec-2018.

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, each question carry equal marks of 12.

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PART-A

1.

a) Convert the following into binary
(i) $(12.34)_{10}$ (ii) $(45.25)_8$
b) Draw the truth table for half adder
c) What are the different buses and what jobs they do in a microprocessor?
d) What is three state bus
e) What are the types of microinstructions available?
f) List the various semiconductors RAMs?

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

PART-B

4 X 12 = 48

2. a) Convert following numbers to hexadecimal.
$(360)_8$ $(2262)_{10}$ $(10011.1101)_2$ $(10.1)_2$
b) Give Booth's algorithm to multiply 2 binary numbers.

3. a) Draw the schematic diagram of a master slave J-K flip -flop? Discuss its working principle. What are its advantages over other types of flip-flops
b) Discuss about Gates and Multiplexers

4. a) Explain Hardwired control unit for simple CPU with diagram.
b) Explain various types of interrupts and how to handle them.

5. a) What is Register Transfer language? Discuss about the Register transfer with symbols and examples.
b) Write short notes on Arithmetic micro operations

6. a) Explain micro program control unit. What are the advantageous and disadvantages of it
b) Explain in detail about design of control unit

7. a) Explain Associative memory organization with an example
b) Explain Daisy Chaining. Differentiate it from priority interrupts.

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

Subject Code: R16MCA103

MCA - I Semester Regular Examinations, Dec-2018

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, each question carry equal marks of 12.

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PART-A

1. a) Verify whether (~pvq) → p is a Tautology or not.
   b) Define Relation and explain with an example.
   c) What is a semi group?
   d) What is the value of $10p_4$?
   e) In how many ways can we solve Recurrence Relations.
   f) What is meant by Isomorphism?

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

PART-B

4X 12 = 48

2. (a) Show that (P ^ Q) ˅ (~P ^ Q) ˅ (P ^~Q) ˅ (~ P ^ ~ Q) is a tautology.
   (b) Write the symbolic statement of the following.
   i) If Rita and Sita go to I.T. camp and Jim and John go to P.C. camp then the college gets the good name.
   ii) It is not true that Ramu reads Times or DC but not The Hindu. [6+6]
3. a) Consider the relation R = { (1,3), (1,4), (3,2), (3,3), (3,4) } on A = {1, 2, 3, 4}.
   i) Find the matrix representation of R.
   ii) Find R-1
   iii) Draw the directed graph of R
   (b) When can you compute inverse of a function. Explain with an example.

[6+6]

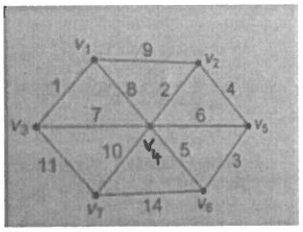
4. a) A non-empty subset H of a group G is a subgroup of G if and only if $ab \in H$ and $a^{-1} \in H$.
   b) Let $G=\{x \mid -1<x<1\}$. Define a binary relation * on G by $a*b=\frac{a+b}{1+ab}$. Show that ¿ is a group.

[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 $a_n = c\ a_{n-1} + f(n)$ for n>=1.
   b) Solve the recurrence relation $a_n - 7a_{n-1} + 12a_{n-2} = 0$ for n>=2 where $a_0 = 0$ and $a_1 = 1$ by characteristic method. [6+6]

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



(b) What are the basic operations that can be performed on a Graph. [6+6]

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Narasaraopeta Engineering College (Autonomous)

Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16MCA104

MCA - I Semester Regular and Supplementary Examinations, Dec-2018.

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, each question carries equal marks of 12.

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PART-A

1. (a) If A,B are any two events in a sample space S, then P(AUB)=P(A)+P(B)-P($A \cap B$)
   (b) If the probability of a defective bolt is 0.2 , find the mean, standard deviation of bolts in a total of 400
   (c) If X is a normal variate with Mean 30 and Standard Deviation 5. Find P(26≤ X ≤40).
   (d) When a sample is taken from an infinite Population, what happen to the standard error of the mean if the sample size is decreased from 800 to 200.
   (e) If we can assert with 95% that the maximum error is 0.05 and P=0.1, find the size of the sample.
   (f) Define TYPE-1, TYPE-II errors in testing hypothesis.

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

PART-B

4X 12 = 48

2. (a) From city 3 newspapers A,B, C are being published. A is read by 20%, B is read by 16%, C is read by 14%,both A and B are read by 8%, both A and C are read by 5%, both B and C are read by 4% and all the three are read by 2% . What is the percentage of population that read at least one paper. [6+6]
   (b) Suppose 5 men out of 100 and 2 women out of 10,000 are color blind. A color blind person is chosen at random. What is the probability of the person being a male.
3. (a) Suppose a continuous random variable X has the probability density function
   $f(x) = K(1-x^2)$ for $0<x<1$ and $f(x)=0$ otherwise,
   Find (I) k (ii) mean (iii) variance [6+6]
   (b) In a normal distribution, 7% of the items are under 35 and 89% are under 63. Determine mean and variance of the distribution.
4. A population consists of four numbers 2,3,4,5. Consider all possible distinct samples of size two with replacement. Find a) Population mean b) Population Standard Deviation c) The sampling distribution of mean d) Standard Deviation of the Sampling Distribution of means

5. (a) A random sample of size 81 was taken whose variance is 20.25 and mean is 32,construct 90% and 98% confidence intervals for mean. [6+6]

(b) The means of two large samples of size 1000 and 2000 members are 67.5 inches and 68 inches respectively. Can the samples be regarded as drawn from the same population of S.D. 2.5 inches.

6. Fit a poisson distribution to the following data and for its goodness of fit at level of significance 0.05? [12]

X	0	1	2	3	4
f	419	352	154	56	19

7. A self-service canteen employs one cashier at its counter. 8 customers arrive per every 10 minutes on an average. The cashier serve on average one per minute. [6+6]

Assume that the arrivals are Poisson and the service time distribution is exponential, Determine

(a) The average number of customers in the system?

(b) The average queue length?

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Subject Code: R16MCA105

MCA - I Semester Regular Examinations, Dec-2018/Jan-2019

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, each question carries equal marks of 12.

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PART-A

1. (a). What is business entity concept?

(b) Who are users of accounting?

(c) Gross profit ratio

(d) What is marginal costing?

(e) What is budgeting?

(f) Data collection?

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

PART-B

4X 12 = 48

2. Journalise the following Transactions. [6+6]

(a) i) Rama Commenced Business with cash 500000/-

ii) Purchase goods for cash 35000/-

iii) Goods sold to Hari with discount 10%, 20000/-

b) i) Cash deposited into bank 4000/-

ii) Withdraw from bank for personal use 6000/-.

iii) Rent paid 3000/-.

3. Prepare trading and profit and loss account for the year ending 31.03.2012 and a balance sheet as on that date from the following data **(4+4+4)**

Particulars	Debit	Particulars	Credit
Purchase	70000	Goods returned	5000
Carriage inwards	1500	Sales	110000
Salaries	14000	Bills payable	15800
Rent and Taxes	2800	Capital account	76000
Insurance	500		
Discount	800		
Bank	13700		
Plant and Machinery	12000		
Investments	8000		
Furniture	5000		
Bills receivables	45500		
Cash in hand	1000		
Sundry expenses	500		
Opening stock	31500		
Total	**206800**	**Total**	**206800**

Additional information:

A) Provide outstanding salary 2500/-

B) Make a provision for bad debts in bills receivables by 1500/-

C) Closing stock 65000/-

D) Provide Depreciation on Plant and Machinery @ 10% p.a.

E) Create 5% Interest on Capital.

4. Explain profit maximization vs. wealth maximization concept in detail? **(12 M)**

5. What is BEP; write its characteristics, advantages and disadvantages? **(12 M)**

6. Define Budget and explain various types of budgets? **(12 M)**

7. Discuss the Process of Document files and output generated in computerized accounting system? **(12 M)**

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