

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**COURSE COVERAGE SUMMARY  
AND  
QUESTION BANK**

**FOR**

**II B.TECH I SEMESTER  
(2017 – 18)**



**MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**

(Sponsored by CMR Educational Society)

(Affiliated to JNTU, Hyderabad, Approved by AICTE - Accredited by NBA & NAAC – 'A' Grade - ISO 9001:2008 Certified)

Maisammaguda, Dhulapally (Post Via Hakimpet), Secunderabad – 500100

# INDEX

S.NO	NAME OF THE SUBJECT
1	MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE
2	ELECTRONIC DEVICES AND CIRCUITS
3	PROBABILITY AND STATISTICS
4	DATA STRUCTURES USING C++
5	DIGITAL LOGIC DESIGN
6	COMPUTER ORGANIZATION



Code No: R15A0503

**MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**

(Autonomous Institution – UGC, Govt. of India)

**II B.Tech I Semester supplementary Examinations, May 2017****Mathematical Foundation of Computer Science  
(CSE)**

Roll No									
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**Time: 3 hours****Max. Marks: 75****Note:** This question paper contains two parts A and B

Part A is compulsory which carries 25 marks and Answer all questions.

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

**PART - A****(25 Marks)**

1. a) Define the dual of a Compound statement. [2m ]
- b) Find the negative of  $\forall x \in D, p(x) \rightarrow q(x)$  [ 3m ]
- c) The relation R is defined by 'aRb if and only if a + 3b is divisible by 4, for a, b  $\in$  Z. Show that R is a reflexive relation on the set Z. [2m ]
- d) Define a lattice. [ 3m ]
- e) Find the number of permutations of the word THAT. [2m ]
- f) Find the coefficient of  $x^2y^6$  in the expansion of  $(x - y)^8$  [ 3m ]
- g) Find the generating function of the sequence 1, 3,  $3^2$ ,  $3^3$ , ..... [2m ]
- h) Solve the recurrence relation  $u_n - u_{n-1} + 2u_{n-2} = 0$  [ 3m ]
- i) Find the number of edges of a complete graph with 6 vertices. [2m ]
- j) Define Euler circuit, Hamiltonian circuit and Planar graph [ 3m ]

**PART - B****(50 Marks)****SECTION - I**

2. a) Verify the proposition  $(p \wedge q) \wedge (\neg (p \vee q))$  is a contradiction or Tautology.
- b) Prove that the following is a valid argument  
 $p \rightarrow (q \wedge r), s \rightarrow r, r \rightarrow p, \therefore s \rightarrow q$  [5+5]
3. a) Find the conjunctive normal form of  $q \vee (p \wedge \neg q) \vee (\neg p \wedge \neg q)$
- b) Prove that the following is a valid argument  
 $\neg \exists [p(x) \vee q(x)], \neg p(x) \rightarrow r(x), \therefore r(a).$  [5+5]

**SECTION -II**

4. a)  $A=\{1,2,3,4\}$  is a Relation  $R$  from  $A$  to  $A$ .  $R=\{(1,1),(1,2),(2,3), (3,4)\}$ .  $S=[(3, 1), (4, 4), (2, 4), (1, 4)]$  Determine  $R \circ S$ ,  $S \circ R$ ,  $R^2$ ,  $S^2$

b) Show that the set of integers is a group under addition. [5+5]

5. a) If  $A=\{1,2,3,4\}$  is a Relation  $R$  from  $A$  to  $A$ .  $R=\{(1,1),(1,2), (2,1),(2,2),(2,4), (3,3),(4,4)\}$ . Find whether  $R$  is an Equivalence relation?

b) Prove that intersection of two sub monoids is a submonoid [5+5]

**SECTION -III**

6. a) Find the number of positive integer solutions of  $x_1 + x_2 + x_3 + x_4 + x_5 + x_6 < 10$

b) Find the coefficient of  $x^{10}$  in the expansion of  $\frac{1}{(1-x)^3}$  [5+5]

7. a) If 4 men and 4 women are to be seated in a row. Find the number of ways

i) If any person can sit to any person.

ii) Men and women to be seated alternately.

b) Suppose 14 students in a class appear at a university examination. Prove that there exists at least two among them whose seat number differ by a multiple of 13. [5+5]

**SECTION -IV**

8. Solve the following difference equation  $u_n - 2u_{n-1} - 3u_{n-2} = 5^n$ ,  $u_0 = 1, u_1 = 1$  [10 m]

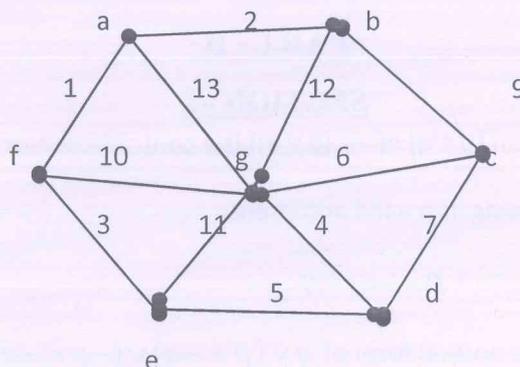
9. Find the generating function of  $n^2 + n$  [10m]

**SECTION -V**

10. a) State and prove Euler's formula

b) Prove that  $K_4$  is planar. [5+5]

11. Find the minimum spanning tree for the graph. [10]



Code No: R15A0401

**MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**

(Autonomous Institution – UGC, Govt. of India)

II B.Tech I Semester supplementary Examinations, May 2017

Electronic Devices and Circuits

(ECE, CSE)

Roll No									
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Time: 3 hours

Max. Marks: 75

**Note:** This question paper contains two parts A and B

Part A is compulsory which carries 25 marks and Answer all questions.

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

**PART - A****(25 Marks)**

1. a) Write the PN junction diode applications. [2M]
- b) Explain the temperature dependence of V-I characteristics of PN diode [3M]
- c) Define Transformer utilization factor (TUF) of a rectifier. [2M]
- d) What is a rectifier and how a PN junction diode used as a rectifier. [3M]
- e) Draw the hybrid parameter model for BJT. [2M]
- f) A transistor has  $I_B=100\mu A$ ,  $I_{CO}=5\mu A$ ,  $\alpha=0.95$ , Calculate  $I_C$ . [3M]
- g) What is biasing. [2M]
- h) Explain early effect. [3M]
- i) Draw the symbols of Depletion MOSFET and Enhancement MOSFET for both n channel and p channel. [2M]
- j) Compare BJT and JFET. [3M]

**PART - B****(50 Marks)****SECTION - I**

- 2 a) Write the volt-ampere equation for PN junction diode. Draw and explain the V-I characteristics of PN junction diode under forward and reverse bias [5M]
- b) Explain about breakdown mechanisms in semiconductor devices. [5M]

OR

3. a) Explain the principle and operation of Tunnel diode and draw its V-I characteristics. [6M]
- b) Discuss about Zener Diode characteristics. [4M]

**SECTION - II**

4. a) Draw a neat diagram and explain working principle of full wave bridge rectifier. [5M]
- b) Draw the circuit for a half wave rectifier and derive the expression for
  - i) DC load voltage
  - ii) RMS current
  - iii) Ripple factor
 [5M]

OR

5. a) What are different types of filters? Compare them. [5M]

- b) A HWR circuit supplies 100mA DC current to a 250ohms load. Find the DC output voltage, PIV rating of a diode and the RMS voltage for the transformer supplying the rectifier. [5M]

SECTION – III

6. a). Explain the operation of transistor with current components in detail. [6M]  
b) Explain the operating modes of BJT. [4M]

OR

7. a) Explain the input and output V-I characteristics of common base configuration of BJT. [5M]  
b) Explain how the BJT can be used as an amplifier [5M]

SECTION – IV

8. a) Explain in detail about Thermal Runaway and how to avoid it. [5M]  
b) In a Self bias circuit containing  $R_1=50K\Omega$ ,  $R_2=25K\Omega$ ,  $R_e=1K\Omega$ ,  $R_c=3K\Omega$ ,  $\beta=90$ ,  $V_{CC}=12V$ ,  $V_{BE}=0.7V$ . Find the operating point, Stability factor S [5M]

OR

9. a) Give the advantages of h-parameter analysis. [4M]  
b) The h-parameters of a Transistor used in a CE circuit are  $h_{ie}=1K\Omega$ ,  $h_{re}=2 \times 10^{-4}$ ,  $h_{fe}=50$ ,  $h_{oe}=25\mu A/V$ . The load resistance for the transistor is  $1K\Omega$  in the collector circuit. Determine  $R_i$ ,  $R_o$ ,  $A_v$ ,  $A_i$  in the amplifier stage (Assume  $R_s=1K\Omega$ ). [6M]

SECTION – V

- 10.a) Explain in detail the working of JFET and draw its drain and transfer characteristics.[5M]  
b) Explain the construction and working of Enhancement MOSFET. [5M]

OR

11. a) Derive the expressions for  $Z_i$ ,  $Z_o$  and  $A_v$  for common source J-FET amplifier [6M]  
b) Compare BJT and MOSFET [4M]

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Code No: R15A0024

**MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**

(Autonomous Institution – UGC, Govt. of India)

II B.Tech I Semester supplementary Examinations, May 2017

**Probability and Statistics**

(CSE)

Roll No									
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**Time: 3 hours****Max. Marks: 75****Note:** This question paper contains two parts A and B

Part A is compulsory which carries 25 marks and Answer all questions.

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

**PART - A****(25 Marks)**

1. a Define classical definition of probability.
- b. A box contains 6 red, 4 white and 5 black balls. A person draws 4 balls from the box at random. Find the probability that among the balls drawn there is at least one ball of each color.
- c. What is angle between two regressions lines ?
- d. Explain the term Regression.
- e. Define sampling distribution.
- f. Explain (1) Type-I-error (2) Type-II-error.
- g. Write a short note on Chi-square test.
- h. Obtain 95% confidence interval for mean with  $n = 16$ ,  $400$ ,  $\bar{x} = 3.42$ ,  $s = 0.68$ .  
(table value=2.947)
- i. What is a waiting line?
- j. Define Markov processes.

**PART - B****(50 marks)****SECTION-I**

2. a) Two persons A and B appeared for an interview for a job. The probability of selection of A is  $1/3$  and that of B is  $1/2$ . Find the probability that (i) both of them will be selected (ii) only one of them will be selected (iii) none of them will be selected
- b) State Baye's theorem.

OR

3. a) The diameter of an electric cable assumed to be a continuous r.v with the p.d.f  $f(x) = 6x(1 - x)$ ,  $0 \leq x \leq 1$ . Check that  $f(x)$  is p.d.f, and find b such that  $P(x < b) = P(x > b)$ .
- b) Components are packed in boxes of 20. The probability of a component being defective is 0.1. What is the probability of a box containing 2 defective components?

## SECTION -II

- 4.a) Calculate the correlation coefficient for the following heights (in inches) of fathers (X) and their sons (Y):

X : 65 66 67 67 68 69 70 72  
Y : 67 68 65 68 72 72 69 71

- b) In a record of an analysis of correlation data, the following results are readable:  
variance of X = 9; Regression equations:  $8X - 10Y + 66 = 0$  and  $40X - 18Y = 214$ .  
Find (i) the mean values of X and Y  
(ii) The correlation coefficient between X and Y and  
(iii) The standard deviation of Y

OR

5. The following are midterm and final examination test scores for 10 students from a calculus class, where x denotes the midterm score and y denotes the final score for each student.

X: 68 87 75 91 82 77 86 82 75 79

Y: 74 79 80 93 88 79 97 95 89 92

Calculate the least-squares regression lines for these data.

## SECTION -III

6. a) Discuss the test procedure for testing single mean of the population when size of the sample is large.
- b) The mean lifetime of 100 fluorescent light bulbs produced by a company is computed to be 1570 hours with a standard deviation of 120 hours. If  $\mu$  is the mean lifetime of all the bulbs produced by the company, test the hypothesis  $\mu = 1600$  hours against the alternative hypothesis  $\mu \neq 1600$  hours using a 5% level. (Table value = 1.96)

OR

7. a) Test the significance of the difference between the means of the samples from the following data:

	Sample A	Sample B
Size of sample	100	150
Mean	50	51
Standard deviation	4	5 (Table value = 1.96)

- b) Random samples of 400 men and 600 women were asked whether they would like to have a flyover near their residence. 200 men and 325 women were in favour of the proposal. Test the hypothesis that proportions of men and women in favour of the proposal are same at 5% level.

**SECTION –IV**

8. a) sample of 10 boys has the I.Q's 70, 120, 110, 101, 88, 83, 95, 98, 107 and 100. Test the mean I.Q of the students is 100 at 0.05 level of significance. (Table value=2.262)

b) Explain the test procedure for t-test for difference of population means.

OR

9. Fit a Poisson distribution to the following data and test the goodness of fit at 0.05 levels:

No. of accidents:	0	1	2	3	4	5	6
No. of days :	150	65	45	34	10	6	2

**SECTION –V**

10 a) What are the characteristics of queuing model  $M / M / 1 : \infty / FCFS$

b) A single server queuing system with Poisson input, exponential service times. Suppose the mean arrival rate is 3 calling units per hour, the expected service time is 0.25 hours and the maximum permissible number calling units in the system is two. Calculate the expected number in the system.

OR

11. a) Define Markov chain. Give examples.

b) Explain about limiting distribution of a Markov chain.

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Code No: R15A0504

**MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**

(Autonomous Institution – UGC, Govt. of India)

II B.Tech I Semester supplementary Examinations, May 2017

Data Structures using C++

(CSE)

Roll No									
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Time: 3 hours

Max. Marks: 75

**Note:** This question paper contains two parts A and B

Part A is compulsory which carries 25 marks and Answer all questions.

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

**PART - A****(25 Marks)**

1. (a) When is a binary search best applied? [2M]
- (b) What is the average number of comparisons needed in a sequential search to determine the position of an element in an array of 100 elements, if the elements are ordered from largest to smallest? [3M]
- (c) What is LIFO? [2M]
- (d) What are binary trees? [3M]
- (e) What are the parts of a linked list? [2M]
- (f) What is the Hashing technique which allocates fixed number of buckets? [3M]
- (g) What is an ordered list? [2M]
- (h) Give a basic algorithm for searching a binary search tree. [3M]
- (i) How do you insert a new item in a binary search tree? [3M]
- (j) What is a graph? [2M]

**PART - B****(50 Marks)****SECTION - I**

- 2.a) Write a program for Linear Search.
- b) Write a program for Merge sort with an example.

**OR**

3. a) Explain about internal sorting with suitable example
- b) What is heap? Sort the following list L in ascending order using heap sort  
L={56,65,92,38,44,90,61,16,73,37}

**SECTION - II**

4. a) Describe the following briefly with two examples each
  - 1) Abstract DTs
  - 2) Non Linear DSs
- b) Write the linked list operations of stacks and write the applications of stacks.

**OR**

5. a) What are threaded binary trees. Discuss with some examples.
- b) Discuss briefly about the binary trees traversals.

**SECTION – III**

6. What is Binary Tree and explain the various tree traversal algorithms in detail.

**OR**

7. a) Briefly explain the ADT queue.
- b) Explain the application of machine shop simulation.

**SECTION – IV**

8. a) Explain with suitable examples double hashing, rehashing and extendible hashing?
- b) What is the structure to represent node in a skip list. Write the constructor for skipList.

**OR**

9. a) What is a dictionary? Define the abstract data type for it? Write the abstract class for the dictionary?
- b) Explain the linear probing method in Hashing? Explain its performance analysis?

**SECTION – V**

10. Explain AVL rotations ? Construct AVL tree for the given sequence 30, 31, 28, 23, 22, 28, 24, 29, 26, 27.

**OR**

11. Write an algorithm for BFS algorithm and explain with example.

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Code No: R15A0461

**MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**

(Autonomous Institution – UGC, Govt. of India)

II B.Tech I Semester supplementary Examinations, May 2017

**Digital Logic Design  
(CSE)**

Roll No										
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**Time: 3 hours****Max. Marks: 75****Note:** This question paper contains two parts A and B

Part A is compulsory which carries 25 marks and Answer all questions.

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

**PART - A****(25 Marks)**

1. (a) Write the truth tables for OR, AND and NOT gates [2M]
- (b) State the basic properties of Boolean algebra? [3M]
- (c) What is incompletely specified functions/don't care conditions? [2M]
- (d) What are the limitations of K-map? and write the advantages of Quine McCluskey method [3M]
- (e) Draw the logic circuit of a half adder and construct truth table [3M]
- (f) Define multiplexer and comparator [2M]
- (g) What is the operation of JK flip-flop? [3M]
- (h) What is a modulo counter, ring and Johnson counter? [2M]
- (i) What is Read and Write operation? and define Static RAM and dynamic RAM [3M]
- (j) What is programmable logic array? How it differs from ROM? [2M]

**PART - B****(50 Marks)****SECTION - I**

2. a) Express the following in decimal: a)  $(10110.0101)_2$ , b)  $(16.5)_{16}$ , c)  $(26.24)_8$ , d)  $(FAFA.B)_{16}$ , e)  $(1010.1010)_2$  (a)  $(10110.0101)_2$   
b) Obtain the complement of  $f = wx'y + xy' + wxz$  using De Morgan's theorem  
OR
3. a) Explain the Ex-OR and Ex-NOR gates with truth tables.  
b) Discuss the canonical and standard form with examples.

**SECTION - II**

4. Reduce the Boolean function using k-map technique and implement using gates  
 $f(w, x, y, z) = \sum m(0, 1, 4, 8, 9, 10)$  which has the don't cares condition  $d(w, x, y, z) = \sum m(2, 11)$ .

**OR**

5. Discuss the multilevel NAND/NOR realizations with examples.

**SECTION – III**

6. Design a half adder using atmost three NOR gates and explain logic operation..

**OR**

7. Design a 2 bit magnitude comparator and explain

**SECTION – IV**

8. Describe the JK flip-flop and realize D and T flip flops using Jk flip-flops.

**OR**

9. Explain the working of BCD Ripple Counter with the help of state diagram and logic diagram.

**SECTION – V**

10. Explain a ROM architecture with neat diagrams

**OR**

11. Explain in detail about PAL.

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Code No: R15A0510

**MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**

(Autonomous Institution – UGC, Govt. of India)

**II B.Tech II Semester Regular Examinations, April/May 2017****Computer organization**

(CSE)

Roll No									
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**Time: 3 hours****Max. Marks: 75****Note:** This question paper contains two parts A and B

Part A is compulsory which carries 25 marks and Answer all questions.

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

**PART – A****(25 Marks)**

- (a) Define bus? Draw single bus structure. (2 marks)  
(b) Define multiprocessing. (3 marks)  
(c) Explain about program counter.(2 marks)  
(d) Explain various computer registers. (3 marks)  
(e) What is a control word? (2 marks)  
(f) What is an effective address.(3 marks)  
(g) What is an I/O interface.(2 marks)  
(h) Name the four steps in pipelining.(3 marks)  
(i) Define Hit and Miss(2 marks)  
(j) What do you mean by memory management unit. (3 marks)

**PART – B****(50 Marks)****SECTION – I**

- (a) Explain briefly floating point representation.(6 marks)  
(b) Write about arithmetic micro operations.(4 marks)  
(OR)
- (a) Explain briefly fixed point representation ( 7marks)  
(b) Explain shift micro operations .(3 marks)

**SECTION – II**

- (a) Explain about instruction cycle.(5 marks)  
(b) Explain various types of computer instructions (5 marks)  
(OR)
- (a) Define micro operation, micro instructions, micro program, micro code(4 marks)  
(b) Explain briefly timing and control in basic computer design.(6 marks)

### SECTION – III

6. (a) Evaluate the arithmetic state  $X=(A+B)*(C+D)$  using 0,1,2,3 addressing instructions (6 marks)

(b) Explain about data manipulation instructions.(4 marks)

(OR)

7. (a) Describe different types of addressing modes (5 M)

(b) Discuss status bit conditions in Program control (5M)

### SECTION – IV

8. (a) why peripheral devices cannot be directly be connected to the system bus (3 marks)

(b) Explain Asynchronous communication interface (7 marks)

(OR)

9. (a) Explain DMA transfer technique with a block diagram (7 marks)

(b) What do you mean by Memory mapped I/O(3 marks)

### SECTION – V

10. (a) Explain Virtual memory .(3 marks)

(b) Explain the concept of paging in virtual memory with example.(7 marks)

(OR)

11. (a) Explain Associative Memory.(5 marks)

(b) Discuss the concept of Memory hierarchy(5 marks)

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Time: 3 hours

Max. Marks: 75

Answer any five questions  
All questions carry equal marks

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- 1.a) What are the advantages of Grey codes? Discuss areas of application.  
b) Perform the arithmetic operation  $(+34) + (-21)$  in binary using signed 2's complement of the subrahend. [15]
- 2.a) Write a program to evaluate the arithmetic statement  

$$X = \frac{A - B + C * (D * E - F)}{G + H * K}$$
using a general register computer with two address instructions.  
b) What is a register transfer bus? Explain. [15]
- 3.a) Write short notes on micro operation and micro code. Explain the difference between them.  
b) How can branch logic hardware be implemented? [15]
- 4.a) Formulate a hardware procedure for detecting an overflow by comparing the sign of the sum with signs of the augund and addend. The numbers are in signed 2's complement representation.  
b) Write short notes on Decimal Arithmetic Unit. [15]
- 5.a) What is the function of a cache memory? Explain the terms cache hit and cache miss.  
b) What are the different types of magnetic memory? Describe them briefly. [15]
- 6.a) What is DMA scheme of data transfer? Discuss its operating principle.  
b) Explain what do you understand by interrupts. Discuss enabling, disabling and masking of interrupts. [15]
- 7.a) Formulate a four-segment instruction pipeline for a computer.  
b) What are the several ways in which branch instructions can be handled in order to avoid performance degradation caused by instruction branching? [15]
- 8.a) What is an array processor? Describe its operating principle.  
b) How can the problem of cache coherence be resolved with a Snoopy Cache Controller? [15]

RO9  
CSK  
No: 54056

AWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD  
B.Tech II Year II Semester Examinations, May-2015  
COMPUTER ORGANIZATION  
(Computer Science and Engineering)

R09

MRCET  
LIBRARY

Time: 3 hours

Max. Marks: 75

Answer any five questions  
All questions carry equal marks

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- a) Explain about Floating Point representation. [8+7]  
b) Convert the Hexadecimal F3A7C2 to binary and octal.
- a) What are the basic differences between a branch instruction, a call subroutine instruction and a program interrupt? [8+7]  
b) Distinguish between micro programmed control and hardwired control.
- a) Discuss the delayed branch in RISC. [8+7]  
b) Explain the basic concepts of instruction pipeline.
- a) Draw the flow chart for multiplication of floating - point numbers. [8+7]  
b) What is a memory controller? What are its functions?
- a) Explain with a timing diagram an input data transfer using hand shake scheme. [8+7]  
b) Discuss the advantages and disadvantages of making the size of the cache blocks larger or smaller.
- a) What are the main types of interrupt that cause a break in the normal execution of a program? Discuss. [8+7]  
b) What is a multiprocessor system? What are tightly coupled and loosely coupled multiprocessor system?
- a) Explain the working of a daisy chain priority interrupt. [7+8]  
b) What is memory interleaving? How does it reduce the block transfer time?  
Explain.
- Write short notes on:  
a) Inter processor communication [5+5+5]  
b) RAID  
c) Asynchronous data transfer modes.

---oOo---

10. Write an 8086 assembly language program to find factorial of a given number?  
Add comments to your Program. [10]

OR

11. Write 8086 assembly language program to find largest number from a given array of numbers? Add comments to your Program. [10]

---ooOoo---



Code No: 114CN

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, May - 2015

COMPUTER ORGANIZATION

(Computer Science and Engineering)

Time: 3 Hours

Max. Marks: 75

**Note:** This question paper contains two parts A and B.  
Part A is compulsory which carries 25 marks. Answer all questions in Part A.  
Part B consists of 5 Units. Answer any one full question from each unit.  
Each question carries 10 marks and may have a, b, c as sub questions.

## PART- A

(25 Marks)

- 1.a) Compare RISC and CISC architecture? [2M]
- b) Give an example to explain three address instruction formats. [3M]
- c) What is strobe signal? [2M]
- d) Why does the DMA having priority over CPU when both requests for memory transfer? [3M]
- e) Give the basic structure of cache and what is its use. [2M]
- f) With a neat diagram explain memory connection to CPU. [3M]
- g) State and explain any two addressing modes of 8086. [2M]
- h) With a neat sketch explain the concept of a pipeline? [3M]
- i) Give examples to explain call instructions in 8086. [2M]
- j) Briefly discuss about unconditional branch statements. [3M]

## PART-B

(50 Marks)

2. Write in detail about various types of instructions? Give examples for each one. [10]
- OR
- 3.a) Discuss about status bits in program control register.
  - b) Explain in detail about conditional branch instructions. [5+5]
4. With a neat diagram explain the architecture of 8089 I/O processor. [10]
- OR
5. With a neat block diagram show the DMA transfer in a computer system. [10]
6. What do you mean by virtual memory? Discuss how paging helps in implementing virtual memory. [10]
- OR
7. Describe in detail about working of associative memory. [10]
8. With a neat architectural diagram explain the functioning of 8086 microprocessor. [10]
- OR
9. With a neat diagram explain the 8086 CPU pin diagram? Discuss in brief about each pin. [10]