

SUBJECT CODE NO:- E-39
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(CSE/IT) Examination Nov/Dec 2017
Microprocessors
(OLD)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
1. Q.No.1 from section A and Q.No.6 from section B (carrying 10 marks each) are compulsory.
 2. Attempt any two questions from the remaining questions in each section (carrying 15 marks each)
 3. Figures to the right indicate full marks.

Section A

- | | | |
|-----|---|------------------|
| Q.1 | Attempt any five: | 10 |
| | <ol style="list-style-type: none">a) If stack segment register contains 3245H and stack pointer register contains 3000H, what is the 20-bit physical address generated by 8086 microprocessor?b) Write any two instructions from the data transfer group and two from arithmetic group, of 8086 instruction set.c) What is the purpose of program invisible register?d) What is the difference between physical address and logical address?e) Write the function of direction and overflow flag of 8086 microprocessor.f) List different data addressing modes of 8086 and comment on any one of them.g) What is the function of SI and DI registers?h) What is the function of base pointer and stack pointer registers? | |
| Q.2 | <ol style="list-style-type: none">a) Explain the real mode memory addressing of 8086 microprocessor.b) Explain rotate and shift instructions. |
07
08 |
| Q.3 | <ol style="list-style-type: none">a) What is memory paging? Explain with suitable diagram.b) Explain programming model of 8086. |
08
07 |
| Q.4 | <ol style="list-style-type: none">a) Write an assembly language program to perform 16-bit by 8-bit division.b) What is interrupt? Explain the related instructions. |
08
07 |
| Q.5 | <ol style="list-style-type: none">a) What are conditional Jumps? Which Hags can be tested by conditional jump instructions? Explain such instructions.b) Write an ALP to transfer block of data containing ten elements from one memory location to another. |
08

07 |

Section B

Q.6	Attempt any five:	10
	<ul style="list-style-type: none"> a) What is the difference between minimum and maximum mode operation of 8086 microprocessor? b) Mention the function of output buffer full and acknowledge signal of 8255 PPI? c) Explain the pins RESET and READY. d) State the operating mode of 8254 to be selected for <ul style="list-style-type: none"> 1. Event counting and 2. Generating a square wave. e) What is the purpose of \overline{CS} pin of a memory device? f) Explain the instruction CMP g) State the need for bus buffering and catching h) What do you mean by isolated I/O? 	
Q.7	<ul style="list-style-type: none"> a) With suitable wave forms explain the timing diagram of write cycle of 8086. b) Explain pin-out of 8086 with suitable diagram. 	08 07
Q.8	<ul style="list-style-type: none"> a) Explain mode 1 and mode 2 operation of 8255 PPI with suitable examples. b) Explain I/O port address decoding with suitable diagram. 	08 07
Q.9	<ul style="list-style-type: none"> a) Explain 8254 PIT with suitable block diagram. b) Explain any three applications of 8254 PIT. 	08 07
Q.10	<ul style="list-style-type: none"> a) Explain the memory devices EPROM and SRAM. b) What do you mean by control ward? Explain the control ward for 8255 PPI? 	08 07

Total No. of Printed Pages:3

SUBJECT CODE NO: E-71
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(CSE/IT) Examination Nov/Dec 2017
Computer Graphics
(OLD)

[Time: 3 Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

- i) Q.No.1 is compulsory.
- ii) Solve any two questions from Q.No.2, 3, 4, &5.

Section- A

- Q.1 Solve all of the following questions.
- a) With suitable diagram explain the construction and working of CRT. 05
 - b) Write the steps of Bresenham's line drawing algorithm. 05
- Q.2 Solve all of the following questions. 05
- a) Write a short note on: Flood fill algorithm. 05
 - b) With suitable diagram explain the architecture or Raster Scan display. 05
 - c) Write a program in open GL to display a rectangle. 05
- Q.3 Solve all of the following questions.
- a) Write a short note on: Tablets and Light Pen. 05
 - b) Explain the open GL library organization in detail. 05
 - c) Write a short note on: Bean Penetration Technique. 05
- Q.4 Solve all of the following questions.
- a) Write a short note on: Indexed color model. 05
 - b) What is pipeline processor architecture? How does it increase processing speed? 05

c) What is mean by display file? What are the functions of segmenting display files? 05

Q.5 Solve all of the following questions.

a) List and explain the different open GL primitives with example and suitable diagram for each. 08

b) Explain glut Init Display Mode () function of Open GL in detail. 07

Q.6 **Section-B**

N.B: i) Q. No. 6 is compulsory.

ii) Solve any two questions from Q. No. 7, 8, 9 and 10.

Solve all of the following questions.

a) Explain the following two dimensional transformations: 05

- i) Shear &
- ii) Reflection

b) Explain the Mid-point Subdivision Line Clipping Algorithm in detail. 05

Q.7 Solve all of the following questions. 05

a) Explain in detail: Parallel Projection and Perspective Projection. 05

b) Consider the line from (0, 0) to (4, 6). Use DDA algorithm to rasterize this line. 05

c) Write a short note on: Z-Buffer algorithm. 05

Q.8 Solve all of the following questions. 05

a) Write a short note on: Text Clipping. 05

b) Prove that two scaling transformations commute, i.e. $S_1 * S_2 = S_2 * S_1$. 05

c) Explain the Sutherland-Hodgeman polygon clipping algorithm. 05

Q.9 Solve all of the following questions.

- a) Explain: Normalization Transformation and Workstation Transformation. 08
- b) What are the different methods available in shading a polygon? Discuss any one of them. 07

Q.10 Solve all of the following questions.

- a) List the different approaches used for hidden surface removal algorithm and explain any one in 08 detail.
- b) Find the transformation matrix that transforms the given square ABCT to half its size with centre still remaining at the same position. The coordinates of the square are: A(1,1), B(3,1), C(3,3), D(1,3) and the centre at (2,2). Also find the resultant coordinates of the square. 07

SUBJECT CODE NO:- E-103
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(CSE/IT) Examination Nov/Dec 2017
Discrete Mathematics
(OLD)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- 1) Q.no.1 from section A and Q. No.6 from section B are compulsory
 - 2) Solve any two question from Q.No.2 to Q. no.5 in section A and any two question from Q.No.7 to Q. no. 10 on section B
 - 3) Assume suitable data if necessary

Section A

- Q.1 Solve any five question of the following 10
- a) Explain conditional probability
 - b) Explain distributive law of sets
 - c) Find the power set of each of these sets
 - i) $\{a\}$
 - ii) $\{a, b\}$
 - d) Write the following set in tabular form
 - i) $A = \{x: x^2 = 9\}$
 - ii) $B = \{x: x \text{ is a multiple of } 3 \text{ and } 0 < x < 20\}$
 - e) Explain Logical implication with example
 - f) Define principle of Duality
 - g) Show that $\neg(\neg p)$ and p are logically equivalent
 - h) Define Existential Quantifier
- Q.2 a) Let A,B,C be sets. Show that $(A - B) - C = (A - C) - (B - C)$ 08
- b) A bag contain 5 white , 3 black & 4 red balls are successively drawn out and not replaced 07
 what is probability that they are alternately of different color
- Q.3 a) Let p, q, r denotes primitive statement 08
 Use truth table to verify the following logical equivalences
 $[(p \vee q) \rightarrow r] \Leftrightarrow [(p \rightarrow r) \wedge (q \rightarrow r)]$
- b) Determine whether 07
 $[(p \vee q) \wedge (p \rightarrow r) \wedge (q \rightarrow r)] \rightarrow r$ is a tautology
- Q.4 a) Show that it is a valid conclusion from the premises $P \Rightarrow q, q \Rightarrow r, r \Rightarrow s, \sim S$ and pvt. 08
- b) Lets $p(x)$ be the open statement " $x^2 = 2x$ " where the universe comprise all integers 07
 Determine whether each of the following statement is true or false
- a) $P(0)$
 - b) $P(1)$
 - c) $P(2)$
 - d) $P(-2)$
 - e) $x.p(x)$

- Q.5
- Construct truth table for $(P \wedge (\sim p \vee q)) \wedge \sim q$ 07
 - For all $n \in \mathbb{Z}^+$, prove $\sum i = 1 + 2 + 3 + \dots + n = n(n+1)/2$ using mathematical induction 08

Section – B

- Q.6 Solve any five question of the following 10
- What are differences between Cartesian product & relation?
 - Let R be a relation on set $A = \{1, 2, 3, 4\}$ defined by $R = \{(1,1), (2,2), (3,3), (4,4), (4,3), (4,2), (4,1), (3,2), (3,1)\}$ find the zero – one matrix and directed graph of relation R
 - Explain homomorphism with example
 - Explain cyclic group
 - Give an example of a relation which is
 - Reflexive and transitive but not symmetric
 - Symmetric and reflexive but not transitive
 - Define parity – check code with example
 - Find the hamming weight of the given words
 - 1010101
 - 11100111
 - What is inverse of a function give example?
- Q.7
- Let $f(x) = 2x+3$, $g(x) = 3x+4$ and $h(x) = 4x$ for where \mathbb{R} is set of real numbers find gof , fog , foh & goh 08
 - Explain Equivalence classes & partition of a Equivalence relation with example 07
- Q.8
- Let $A = \{1, 2, 3, 4, 5\}$ and $R = \{(1,2), (1,1), (2,1), (2,2), (3,3), (4,4), (4,5), (5,4), (5,5)\}$ Be relation on A . determine the relation R is equivalence relation and find equivalences classes & partitions 08
 - Explain pigeonhole principle with example 07
- Q.9
- Explain triple repetition code with example 08
 - Consider a ring $(\mathbb{R}, +, *)$ defined by $a*a=a$ determine whether the ring is cumulative or not 07
- Q.10
- Explain LaGrange theorem in detail 08
 - Explain decoding with coset leaders in detail with example 07

Total No. of Printed Pages:2

SUBJECT CODE NO:- E-172
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(CSE/IT) Examination Nov/Dec 2017
Object Oriented Programming Using C++
(OLD)

[Time: Three Hours]

[Max.Marks:80]

- N.B Please check whether you have got the right question paper.
- i) Q. No.1 from section A and Q. No.6 from section B are compulsory.
 - ii) Solve any two questions from each section from remaining.
 - iii) Assume suitable data, if necessary.

Section A

- | | | |
|-----|---|----|
| Q.1 | Solve any five: | 10 |
| | <ul style="list-style-type: none">a) What are the features of OOPS?b) What is difference between function overloading and function overriding in c++.c) What is the friend function?d) Define super keyword.e) Define scope resolution operator.f) What are the Access Specifiers in C++g) What are the benefits of inheritance? | |
| Q.2 | Explain the following concepts of OOP in detail with an example. <ul style="list-style-type: none">a) Objects & Classb) Inheritancec) Polymorphism | 15 |
| Q.3 | a) Write a program in C++ based on following requirement
An EMPLOYEE class contains the following members:
Date Members: Employee_Number, Employee_Name, Basic, DA,IT, Net_Sal;
Member Function: to read data, to calculate Net_Sal and to print data memebrs;
Write a C++ program to read data on N employees and compute the Net_Sal of each employee (DA=52% of Basic and Income Tax=30% of the gross salary). | 08 |
| | b) What do you mean by inline function? Explain with example | 07 |
| Q.4 | a) What is inheritance? Explain multiple inheritance with example. | 08 |
| | b) Write a program to swap two numbers using call by value & call by reference. | 07 |
| Q.5 | a) Explain Constructor and its type with example. | 08 |
| | b) Explain virtual base class with suitable example. | 07 |

2017

SECTION B

Q.6	Solve any five:	10
	a) What are three components of STL.	
	b) Define early and late binding?	
	c) Define fstream with example	
	d) What is “this”?	
	e) Define template	
	f) What is abstract class?	
	g) What is divided by zero exception?	
	h) Define containers?	
Q.7	a) Write short note on new and delete operators.	08
	b) Explain virtual base class with suitable example.	07
Q.8	a) Write a program to illustrate the concept of exception handling	08
	b) Explain the concept of command line arguments with example	07
Q.9	a) Write a c++ program to read a file name and display the content of file on screen	08
	b) Explain the concept of vectors in STL with example.	07
Q.10	a) Explain the concept of visibility mode in inheritance with example.	08
	b) Write a short note on “I/O manipulation”.	07

Total No. of Printed Pages:2

SUBJECT CODE NO: E-229
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(CSE/IT) Examination Nov/Dec 2017
Computer Networks-I
(OLD)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i) Question No.1 and 6 is compulsory.
 - ii) Attempt any two questions from Q.No.2 to Q.No.5 and Q.No.7 to Q.No.10 of each section.

SECTION A

- Q.1 **Attempt any five:** 10
- a) Explain Bus topology.
 - b) Why we use switching?
 - c) Define block coding and give its purpose.
 - d) What is data rate? Give data rate for LAN.
 - e) State difference between physical Address and Logical Address.
 - f) What is ISP?
 - g) Why we need to multiplex data? State the types of multiplexing techniques.
 - h) Define line coding and give its purpose.
- Q.2 08
- a) Explain frequency hopping spread spectrum.
 - b) Distinguish between Synchronous and statistical TDM. 07
- Q.3 08
- a) Compare Connection oriented & connection less services in detail.
 - b) Explain Bipolar Line Coding Schemes. 07
- Q.4 08
- a) Give connection types & topologies of computer Networks.
 - b) Calculate CRC for following. 07
- Message 11010010
- Polynomial 1101
- Q.5 **Write short note on (Any three)** 15
- a. Port Address
 - b. Serial Transmission
 - c. Analog to Digital Conversion
 - d. Checksum
 - e. Hamming

SECTION B

- Q.6 Attempt any five:** 10
- a) In what way TDMA differ from CDMA?
 - b) Define Roaming concept.
 - c) Changes this IPV4 address to binary notation: 111.56.45.78
 - d) What is Active Hub and Passive Hub?
 - e) What is the purpose of NIC?
 - f) What is frequency reuse pattern?
 - g) Give working of router.
 - h) Define PSK & ASK
- Q.7** 08
a) Explain inter networking concept.
b) Explain the IPV4 format with the help of neat diagram. 07
- Q.8** 08
a) What is mean by standard ethernet? Explain with categories.
b) Explain logical Addressing. 07
- Q.9** 08
a) Using a suitable flow chart explain the procedure of channel access for pure ALOHA protocol.
b) Explain different types of connecting devices. 07
- Q.10 Write short notes on. (Any three)** 15
- a) NAT
 - b) Router
 - c) Bluetooth
 - d) Pooling
 - e) FDMA

SUBJECT CODE NO: E-230
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(CSE/IT) (CGPA) Examination Nov/Dec 2017
Computer Networks
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

- N.B
- Please check whether you have got the right question paper.
- Question No.1 and 6 is compulsory.
 - Attempt any two questions from Q.No. 2 to Q.No.5 and Q.No.7 to Q.No.10 of each section.

SECTION-A

- | | | |
|-----|---|----------|
| Q.1 | Answer the following any five | 10 |
| | <ol style="list-style-type: none">Enlist network devices.State types of multiplexing.Draw mesh topology.What is frequency reuse pattern?Define NRZ.Define block coding and give its purpose.List the use of computer networks. | |
| Q.2 | <ol style="list-style-type: none">Explain in brief networking devices.With neat diagram explain pure ALOHA. | 08
07 |
| Q.3 | <ol style="list-style-type: none">Explain packet switching in datagram networks.Explain in brief two sub layers of data link layer a) DLC and b) MAC | 08
07 |
| Q.4 | <ol style="list-style-type: none">With neat diagram explain Frequency Division Multiplexing(FDM)What is hamming distance for each of following code words?
<ol style="list-style-type: none">d(10000,00000)d(10101,10000)d(11111,11110)d(000,011) | 08
07 |
| Q.5 | <ol style="list-style-type: none">Explain major functions performed by data link layer.How Internet is evolved? | 08
07 |

SECTION-B

Q.6	Define following (any five)	10
	a) count- to- infinity	
	b) flooding	
	c) connectionless networks	
	d) user agent	
	e) Browser	
	f) Timeout	
	g) Segment	
Q.7	i. How connection is controlled in datagram?	08
	ii. Explain architecture of web.	07
Q.8	i. Sketch the network diagram of consisting of router, switches, ISPs, LANs, and end nodes at transport layer.	08
	ii. Explain in brief major functions performed by application layer.	07
Q.9	i. How congestion is handled by TCP?	08
	ii. With suitable example describe distance vector routing.	07
Q.10	i. What is user agent? How it is used in Internet?	08
	ii. Draw IP V4 header and explain each field of header.	07

Total No. of Printed Pages:03

SUBJECT CODE NO: E-268
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(CSE/IT) Examination Nov/Dec 2017
Data Structures using C
(OLD)

[Time: Three Hours]

[Max.Marks:80]

N.B Please check whether you have got the right question paper.
i) Q.No. 1 from Section A and Q.No. 6 from Section B are compulsory.
ii) Solve any two questions from each section from remaining questions.

Section A

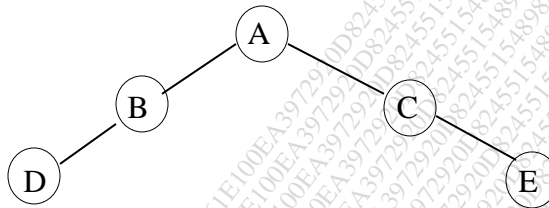
- Q.1 Solve any five. 10
- a) Explain Malloc function.
 - b) Define algorithm. Give any two criteria's to be satisfied by any algorithm.
 - c) What is multiple queues?
 - d) List the operations on stack.
 - e) Differentiate between structure & union.
 - f) Define array. Give representation of two dimensional array.
 - g) Design a doubly linked list for three nodes.
- Q.2 a) What is the necessity of ADT? Write ADT for natural number. 08
- b) How to measure performance of an algorithm? Explain criterias used to analyse any algorithm. 07
- Q.3 a) Develop a structure to represent students information. Consider the following fields: 08
- i) Roll No. ii) Name iii) Marks iv) Address.
- b) Define sparse matrix. Write ADT for the same. 07
- Q.4 a) Write C program to implement stack using dynamic array. 08
- b) What is linked list? Explain various operations on singly linked list. 07

2017

- Q.5 a) What is queue? Explain operations on queue with algorithms. 08
- b) Evaluate given post_fix expression using stack: 07
 $2, 3, 1, *, +, +, 9, -$

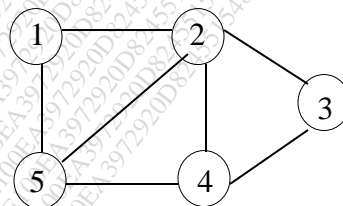
Section B

- Q.6 Solve any five of the following:- 10
- a) For the following tree give array representation:



- b) What is the minimum number of edges required in connected, complete directed graph for n vertices?
- c) Define complete Binary tree.
- d) Create Max-Heap for following keys:
 $7, 15, 20, 2, 82$
- e) Define pairing heap.
- f) What is optimal binary search tree?
- g) Explain types of splay tree.

- Q.7 a) Explain matrix and list representation of following graph: 07



b) Write ADT for binary- Tree.

08

Q.8

a) Explain Fibonacci heap with example.

07

b) Construct height balanced tree for the given values: 10,20,15,25,30,16,14

08

Q.9

a) Start with an empty red-black tree and insert the following keys in the given order:
10,7,13,5,2,15

08

b) Explain leftist tree. Explain melding operation on following: HBLT

07



Q.10 Write short note on any three:-

15

- i) Optimal binary search tree.
- ii) Disjoint set union and find (i)
- iii) Tree traversal techniques.
- iv) Winner – Tree and loser tree.

SUBJECT CODE NO: E-269
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(CSE/IT) (CGPA) Examination Nov/Dec 2017
Data Structures
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

- i) Q.No.1 from section A and Q.No.6 from section B are compulsory.
ii) Solve any two questions from the remaining questions in each section

Section A

- Q.1 Solve any five 10
- a) What does 'sizeof' operator do in c?
- b) What are the various operations that can be performed on different data structures?
- c) What will be output of the following code segment?
`int a[10] = { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 }
* p = a;
printf (" %d : %d" , P[7], P[a[7]]);`
- d) Convert given expression in prefix and postfix form $A * B + C * D + E$
- e) Explain queue full & queue empty condition.
- f) Give circular linked representation of
Polynomial: $10x^4 + x^2 + x + 5$
- g) How array is different from linked list.
- Q.2 (a) Write c program to find second largest and smallest element in an Array. 07
- (b) What is pointer? Explain various functions used in C for dynamic memory allocation. 08
- Q.3 (a) Write C program to implement stack using dynamic memory allocation. 07
- (b) What is circular queue? A circular queue has a size of 5 and has three elements 10,40 and 20, where $F=2$ and $R=4$. Trying to insert 30 at this stage what will happen? Delete 2 elements from queue and insert 100, show sequence of steps with necessary diagram with value of front (F) and rear (R). 08

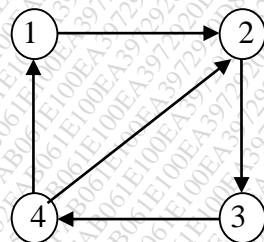
- Q.4 (a) Explain how to implement stack using linked list. 07
- (b) Write C function to perform following operations on linear linked list: 08
- Insert a node at end of list
 - Delete a node from a list

- Q.5 (a) Evaluate given postfix expression using stack: $A=1, B=2, C=3, ABC + * CBA - + *$ 08
- (b) Write two applications of each 07
- Stack
 - Queue
 - Linked List

Section B

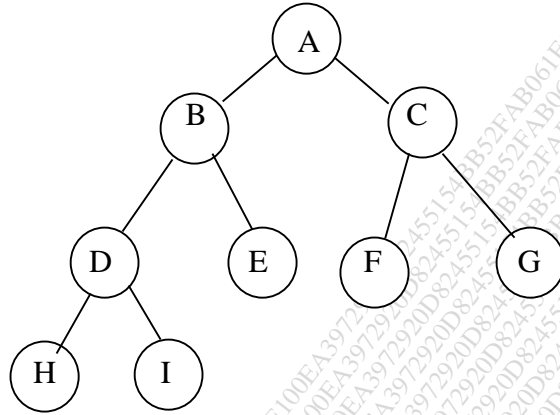
- Q.6 Solve any five 10

- (a) Explain following tree terminologies
- Degree of node
 - Leaf node
- (b) Construct binary tree for a given sequence-
Preorder : F, A, E, K, C, D, H, G, B
Inorder : E, A, C, K, F, H, D, B, G
- c) Represent following graph using Adjacency matrix



- d) Name two traversal techniques of graph. Which data structures are used for their Implementation.
- e) Search Key $x = 25$ using binary search method for following list
10, 15, 25, 28, 35.
- f) What is max heap property? Give example.
- g) Differentiate between linear search and binary search.

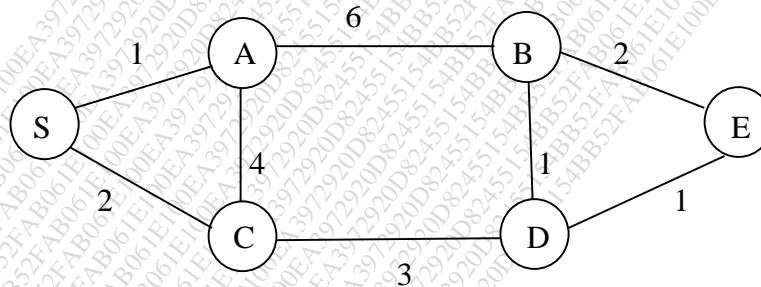
Q.7 (a) What are the various Binary tree representation techniques? Apply these techniques on Following Binary tree 08



(b) Construct AVL tree for the list by successive insertion 5,6,8,3,2,4,7. 07

Q.8 (a) Write C program to implement breadth first search. 07

(b) Find Shortest path from S to E 08



Q.9 (a) Sort the given list using heap sort 9, 8, 6, 2, 4, 7, 5, 1 08

(b) Write C program for insertion sort. 07

Q.10a) Sort the given list using selection sort in descending order : 26, 54, 93, 17, 77, 31 07

(b) Define binary search tree, Explain insertion into BST and deletion from BST with example. 08

Total No. of Printed Pages:2

SUBJECT CODE NO:- E-309
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(CSE/IT) Examination Nov/Dec 2017
Unix & Shell Programming
(OLD)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

- i) Question No.1 from Section-A & Q. No.6 from Section –B are compulsory.
- ii) Solve any two from remaining from each section A& B.

Section A

- | | | |
|-----|---|----|
| Q.1 | Solve any five from following <ol style="list-style-type: none">(i) tee-command(ii) mkdir and rmdir(iii) kill – command(iv) type command(v) Types of shell(vi) fork (), exec() & wait ()(vii) Environment variable. | 10 |
| Q.2 | (a) Explain Architecture of UNIX | 07 |
| | (b) Explain file system and types in UNIX | 08 |
| Q.3 | (a) Explain vi-editor in detail | 08 |
| | (b) Explain how to execute job in background using & and nohup and how to set priority of process | 07 |
| Q.4 | (a) Explain standard files in Unix used for redirection with an example. | 08 |
| | (b) Explain ps command with its option. | 07 |
| Q.5 | (a) Explain process states and also explain how to schedule a job for periodical execution. | 08 |
| | (b) Explain links with its type and example. | 07 |

Section B

- | | | |
|-----|---|----|
| Q.6 | Solve any five <ol style="list-style-type: none">i) prii) sortiii) testiv) exprv) Trvi) Shift – in shellvii) Set – in shell | 10 |
|-----|---|----|

2017

- Q.7 (a) Write a shell script to implement control statement in shell. 07
(b) Explain string function with expr and also write a shell script for string comparison operator. 08
- Q.8 a) Explain awk structure and also explain awk built-in variable and implement awk script. 08
b) Explain grep with BRE and ERE. 07
- Q.9 a) Write a shell script to accept filename and perform following 08
(i) Check file is regular, directory or link
(ii) Whether file is empty or not
b) Explain splice and substr function in Perl. 07
- Q.10 a) Write a Perl script to implement split and join function. 08
b) Explain associative array in Perl with example. 07

SUBJECT CODE NO: E-310
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(CSE/IT) (CGPA) Examination Nov/Dec 2017
Linux Operating System
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Q.No.1 from section 'A' and Q.No.6 from section 'B' are compulsory.
 - ii. Solve any two from remaining questions from each section

Section A

- Q.1 Describe any five. 10
- a) Enlist any four application area of Linux.
 - b) Differentiate between Linux OS and Windows OS.
 - c) 'mkdir' and 'rmdir' command.
 - d) 'ls' command.
 - e) 'who' and 'cal' command
 - f) 'bg' and 'fg' command
 - g) 'date' command
- Q.2 07
- a) Explain Linux architecture in detail with neat labeled diagram.
 - b) Explain 'chmod' command with relative and absolute manner. 08
- Q.3 08
- a) Explain different types of file in Linux O.S. enlist file attributes.
 - b) Explain user management in detail. 07
- Q.4 07
- a) What is process? Explain life cycle of process.
 - b) Explain 'grep' command with all its options. 08
- Q.5 Write a short note (any three) 15
- a) KDE Desktop Environment
 - b) Job scheduling using 'at' & 'batch'
 - c) Linux History
 - d) Linux Distributions

Section B

- Q.6 Describe any five. 10
- a) 'ifconfig' command
 - b) Use of SAMBA Server.
 - c) 'expr' command in shell script
 - d) While loop in shell script
 - e) What is hostname & localhost
 - f) Enlist Data Backup Commands
 - g) Role of super user in Linux O.S

- Q.7 a) What is TCP/IP? Explain how to set IP address in Linux. 07
b) Explain Web Server in detail. 08
- Q.8 a) Write a shell script program to demonstrate case statement. 08
b) Explain different kinds of loop statement available in shell script 07
- Q.9 a) Explain use of 'tar' and 'dump' command in Linux with example. 08
b) Explain different types of backup media. 07
- Q.10 Write a short note on (any three) 15
a) Network Services
b) FTP Server
c) if-else and nested if-else in shell script
d) Study of log file

Subject Code : 353

FACULTY OF ENGINEERING & TECHNOLOGY
S.E. (CSE/IT) Examination
NOVEMBER/DECEMBER, 2017
Digital Electronics

Time: Three Hours

Max. Marks: 80

“Please check whether you have got the right the question paper”

- Note:
- i) Question No. 1 & 6 are compulsory.
 - ii) Attempt any Two from remaining for each section.
 - iii) Figures to the right indicate full marks.
 - iv) Assume suitable data if necessary.

SECTION – A

- Q.1 Solve any Five : 2x5=10
- (a) Draw the logical diagram for the following expression.
$$Y = AB + BC + \bar{A}\bar{B}C$$
 - (b) Construct truth table of 2 input X-OR gate.
 - (c) Enlist any four Boolean laws.
 - (d) Define prime implicants (PI) and essential prime implicants (EPI).
 - (e) Convert following SOP expression to POS form
$$Y = \sum m (2, 5, 6, 7)$$
 - (f) What is decoder?
 - (g) Draw 8.1 MUX block diagram and truth table.
 - (h) What is clock?
- Q.2 (a) Minimize following expression using KMAP. Implement minimized expression using basic gates. 07
$$Y = \sum m (0, 2, 8, 10, 15) + \sum d(7, 13)$$
- (b) Design 2 bit comparator. 08
- Q.3 (a) Design full adder using multiplexer. 07
- (b) Minimize following expression using Quine Mc-Cluskey. 08
$$F(A, B, C, D) = \sum m(0, 1, 2, 3, 4, 5, 6, 8, 9, 10, 11)$$
- Q.4 (a) Design 9 bit odd parity generator using IC 74180. 07
- (b) Justify why NAND and NOR gates are called as universal gates? 08
- Q.5 (a) Design binary to gray code. Converter. 07
- (b) Explain demultiplexer in detail. Differentiate between decoder and demultiplexer. 08

P.T.O.

E – 2017

Subject Code : 353

-2-

SECTION – B

- Q.6 Solve any Five : 2x5=10
- (a) What are the applications of ADC?
 - (b) Draw 4 bit SISO left shift register.
 - (c) How many flip flops are required for 32 bit counter?
 - (d) Draw symbol for J-K flip-flop.
 - (e) Explain what is Mod-N counter.
 - (f) What are applications of shift register?
 - (g) What is race condition?
 - (h) What do you mean by synchronous counter?
- Q.7 (a) Explain bidirectional shift register. 08
- (b) Draw and explain Master slave J-K flip-flop. 07
- Q.8 (a) Draw and explain register network DAC. 08
- (b) Design Mod-10 ripple counter. 07
- Q.9 (a) Draw and explain working of successive approximation ADC. 08
- (b) Design and draw circuit for generating sequence 1100111001. 07
- Q.10 (a) Design 3 bit synchronous counter using D f/f. 08
- (b) Explain Dual slope ADC. 07

Total No. of Printed Pages:2

SUBJECT CODE NO:- E-354
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(CSE/IT) (CGPA) Examination Nov/Dec 2017
Digital Electronics
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

N.B Please check whether you have got the right question paper.
i) Q.No.1 and Q.No.6 are compulsory.
ii) Solve any two questions from Q.2 to Q.5 and any two questions from Q.7 to Q.10.

Section – A

Q.1 Solve any five questions. **10**

- a) Represent the following number in one's complement form +8 and -8.
- b) Design a 4 input NAND gate by using 2 input NAND gate only.
- c) Convert following
 - i) $(25.57)_{10} = (?)_{BCD}$
 - ii) $(ABCDE)_{16} = (?)_8$
- d) Perform following subtraction using 9's complement.
 $215-155$
- e) State and prove De'morgans theorem.
- f) What is mean by self complimenting codes?
- g) Realize following expression using logic gates,
 $Y = (A \oplus B).C + A\bar{B}C$
- h) Reduce following using boolean algebra.
 $Y = F(A, B, C) = \sum m(0,1,6,7)$

Q.2 a) What do you mean by weighted code? Explain BCD, Excess – 3 and gray code. **08**

b) Reduce and realize following expression using NAND – NAND logic. **07**
 $F = \sum m(0,2,8,10,15) + \sum d(7,13)$

Q.3 a) Design a 4 bit adder with look ahead carry. **08**

b) Draw and explain working of half and full subtractor along with its gates realization. **07**

Q.4 a) Differentiate between analog and digital signals. **08**

b) Design BCD to gray code converter. **07**

2017

- Q.5 a) Given a logic equation below 08
- Make a truth table
 - Simplify using K map
 - Realise using NAND gates only
- $$f = ABC + B\bar{C}D + \bar{A}BC$$
- b) Justify – NAND and NOR gates are called as universal gates. 07

Section – B

- Q.6 Solve any five. 10
- What is decoder? Explain with example.
 - Implement following equation using 4:1 multiplexer $y = \sum m(0,1,4,7)$ control i/p B & C.
 - What is parity encoder?
 - Draw logic symbol and truth table of J-K f/f.
 - What do you mean by race – around condition in J-K f/f.
 - Write types of shift registers.
 - Explain the advantages and disadvantages of synchronous counters.
 - Draw 4 bit SISO Right shift register.
- Q.7 a) Design and implement circuit for 2 bit comparator using 4 line to 16 line decoder and multi input OR gate. 08
- b) Draw NAND implementation of S-R f/f and explain its functionality with T.T. 07
- Q.8 a) Design 1:16 demultiplexer by using two 1:8 demultiplexers and basic gates. 08
- b) Explain working of 4 bit universal shift reg. 07
- Q.9 a) Convert i) S-R f/f to T type f/f 08
ii) T type f/f to J-K f/f
- b) Draw and explain the working of 4 bit asynchronous counter. 07
- Q.10 a) What is PLD? Compare PROM, PLA and PAL. 08
- b) Design 3 bit synchronous UP/DOWN counter using J-K f/f. 07