ARKA JAIN University, Jharkhand

4th Semester Examination – 2018-19

Subject: Microprocessor & Programming

Course: Polytechnic
Full Marks : 70
Pass Marks: 28

Time: 3 Hours

- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into **Three Parts –A,B& C**
- **Part-A** is compulsory.
- **Part- B** contains **SIX** questions out of which **FOUR** questions are to be answered.
- **Part- C** contains **SIX** questions out of which **THREE** questions are to be answered.

PART A

Q.1) **All questions are compulsory**

A] Multiple Choice Questions : **(10x1=10)**

a) Microprocessor 8085 is how many bit
i)8 ii) 16
iii) 4 iv) None of these

b) After performing arithmetic function result is sorted in which of the following register in 8085 microprocessor
i) Accumulator
ii) General purpose register
ii) Temporary register
iv) None of these

c) how many data pins are there in 8085 microprocessor
i) 4
ii) 8
iii) 16
iv) None of these

d) How many bit is of accumulator
i) 4
ii) 8
iii) 16
iv) None of these

e) Match the following.

a) 8085 i) 16 bit microprocessor
b) 8086 ii) register
c) Accumulator iii) 8 bit microprocessor

i) a-iii, b-ii, c-i
ii) a-i, b-ii, c-iii
iii) a-iii, b-i, c-ii
iv) a-i, b-iii, c-ii

f) State True or False.

a) Assembly language convert high level to machine level

b) The 8085 microprocessor has 6 general purpose register.

i) True, False
ii) False, True
iii) False, False
iv) True, True

g) how many data pins are there in 8085 microprocessor
i) 4
ii) 8
iii) 16
iv) None of these

h) How many data pins are there in 8086
i) 8
ii) 16
iii) 4
iv) None of these

i) How many general purpose register are there in 8085
i) 1
ii) 2
iii) 4
iv) 6

j) We can obtain the result from which register
i) Temporary register
ii) accumulator
iii) general purpose register
iv) stack pointer

B] Very Short question **(5x2=10)**

a) What is microprocessor?
b) What is microcontroller?
c) What is an assembler?
d) What is an algorithm in microprocessor programming?
e) What is procedure?

PART B

Q2. Answer any four: **(4x5=20)**

i) Write about the evolution of microprocessor in detail?
ii) State the difference between procedure and macros?
iii) Explain in detail memory segmentation of 8086.
iv) Draw the block diagram of 8085
v) State the advantages and disadvantages of 8085 and 8086 microprocessor.
vi) Different addressing mode of 8085.

PART C

Answer any three: **(3x10=30)**

Q.3) Explain the register organization of 8085

Q.4) Explain pipelining of 8086? Draw the max- min mode diagram of 8086?

Q.5) Explain what is an assembler? State and explain different types of assembler?

Q.6) What is different addressing mode of 8086?

Q.7) what is difference between microprocessor and microcontroller? State the silent features of microprocessor 8085 and 8086?

Q.8) Short notes

i) Accumulator
ii) General purpose register
iii) Segment register
iv) Carry flag and auxiliary flag in flag register of 8085
v) Opcode and operand

ARKA JAINUniversity, Jharkhand

4th Semester Final Examination – 2018-19

Subject: Operating System | **Course: Polytechnic**

Time: 3 Hours | **Full Marks :** 70 | **Pass Marks:** 28

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- Question Paper is divided into **Three Parts –A,B& C**
- **Part-A** is compulsory.
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PART A

Q.1) **All questions are compulsory**

A] Multiple Choice Questions : **(10x1=10)**

a) In UNIX, Which system call creates the new process?

i)fork ii) create

iii) new iv) none of the mentioned

b) What is the ready state of a process?

i) when process is scheduled to run after some execution

ii) when process is unable to run until some task has been completed

ii) when process is using the CPU

iv) None of these

c) A set of processes is deadlock if

i) each process is blocked and will remain so forever

ii) each process is terminated

iii) all processes are trying to kill each other

iv) none of the mentioned

d) The address of the next instruction to be executed by the current process is provided by the

i) CPU registers

ii) Program counter

iii) Process stack

iv) Pipe

e) Which scheduling algorithm allocates the CPU first to the process that requests the CPU first?

i) first-come, first-served scheduling

ii) shortest job scheduling

iii) priority scheduling

iv) none of the mentioned

f) An operating system is a program that acts as an interface between the software, user and the _____.

i) Software

ii) Register

iii) Computer hardware

iv) None of these

g) Which one of the following is the deadlock avoidance algorithm?

i) banker's algorithm

ii) round-robin algorithm

iii) elevator algorithm

iv) kern's algorithm

h) Program is a set of _____

i) File

ii) system

iii) instruction

iv) None of these

i) To avoid deadlock

i) there must be a fixed number of resources to allocate

ii) resource allocation must be done only once

iii) all deadlocked processes must be aborted

iv) inversion technique can be used

j) A Process Control Block (PCB) does not contain which of the following:

i) Code

ii) Stack

iii) Bootstrap program

iv) Data

B] Very Short question

(5x2=10)

a) What is operating system?

b) What is Real Time Systems.?

c) What is Process?

d) What is program?

e) What is File?

PART B

Q.2). Answer any four: **(4x5=20)**

i) Write about the operating system services?

ii) What is CPU scheduling? State and explain its type.

iii) Explain what is file allocation and different types of file allocation.

iv) What is a kernel? State and explain different types of kernel.

v) Explain in detail what is system call

vi) Explain evolution of operating system?

PART C

Answer any three: **(3x10=30)**

Q.3) Explainshortest job first algorithm. State and explain its type with example.

Q.4) Explain what is deadlock? State and explain banker's algorithm.

Q.5) What are different process state explain with diagram? What is a process control block?

Q.6) What is scheduling queue? What are different types of scheduler explain in detail.

Q.7)what is first come first serve CPU scheduling algorithm

Calculate the average waiting type using FCFS algorithm. Let all process arrival time be 0 m

process	CPU burst time
P1	2
P2	10
P3	5
P4	1

Q.8) Short notes

i) Directory

ii) Deadlock avoidance

iii) Context switching

iv) Convoy effect

v) Attribute of file

ARKA JAIN University, Jharkhand

4th Semester Final Examination – 2018-19

Subject: Computer Network

Time: 3 Hours

Course: Polytechnic(CSE)
Full Marks: 70
Pass Marks: 28

- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into **Four Parts –A, B & C**
- **Part-A** is compulsory.
- **Part- B** contains **SIX** questions out of which **FOUR** questions are to be answered.
- **Part- C** contains **SIX** questions out of which **THREE** questions are to be answered.

PART A

Q1.) All questions are compulsory:-

I. Objective Answer Type **(10x1=10)**

i) Videoconferencing is an example for communication
a) Simplex b) Half duplex
c) Full duplex d) serial

ii) Router operates in which layer of OSI Reference Model?
a) Layer 1 (Physical Layer) b) Layer 3 (Network Layer)
c) Layer 4 (Transport Layer) d) Layer 7 (Application Layer)

iii) Each IP packet must contain
a)Only Source address b) Only Destination address
c) Source and Destination address d)Source or Destination address

iv) Data communication system within a building or campus is
a) LAN b) WAN
c) MAN d) None of the mentioned

v) The physical layer concerns with
a) bit-by-bit delivery b) process to process delivery
c) application to application delivery d) none of the mentioned

vi) Wireless transmission can be done via
a) radio waves b) microwaves
c) infrared d) all of the mentioned

vii) Physical or logical arrangement of network is
a) Topology b) Routing
c) Networking d) None of the mentioned

viii) In this topology there is a central controller or hub
a) Star b) Mesh
c) Ring d) Bus

ix) The network layer concerns with
a) bits b) frames
c) packets d) none of the mentioned

x) Which topology covers security, robust and eliminating traffic factor?

a) Mesh b) Ring

c) Star d) Bus

II. Short Answer Type **(5x2=10)**

i) Draw the frequency band diagram for communication.

ii) What is Hub?

iii) Explain file sharing & printer sharing.

iv) Compare STP &UTP transmission.

v) How many mode of propagation in fiber optics. Write the name of them

PART B

Q2.) Answer any four: **(4x5=20)**

i) State the various type of network.

ii) What are the modes of communication? Explain

iii) State the various components of computer network.

iv) What is ARP & RARP?

v) Differentiate PPP & SLIP.

vi) What is IP address?

PART C

Answer any Three: **(3x10=30)**

Q3.) Explain the different topologies of the network.

Q4.) Explain in brief:

a) Brouter b) Gateway c) NIC d) Bridge

Q5.)

a) With the help of diagram describe function of optical fiber cable.

b) How does mobile phone work?

Q6.) What is digital communication? Explain how to propagate the signal?

Q7.) What is the TCP/IP? Explain its different layers.

Q8.) What is transmission media? Explain different types of transmission media.

ARKA JAIN University, Jharkhand

4th Semester Final Examination – 2019

Subject : Computer Graphics

Course: Poly_CS
Full Marks: 70
Pass Marks: 28

Time: 3 Hours

- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into **Three Parts –A, B & C**
- **Part-A** is compulsory.
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- **Part- C** contains **FIVE** questions out of which **THREE** questions are to be answered.

PART A

Q1. All questions are compulsory

A] Multiple Choice Questions: **(10x1=10)**

1. Which one of the following is a technique for generating colors on the screen?
   a) Beam penetration
   b) Shadow Masking
   c) Both (a) and (b)
   d) None of these
2. _____ is the process of producing, manipulating and storing images and animations of objects.
   a) Computer Graphics
   b) Bitmap Graphics
   c) Interactive Graphics
   d) Non-Interactive Graphics
3. Which of the following are the applications of computer graphics?
   a) Presentation graphics
   b) Entertainment
   c) CAD
   d) All of these
4. _____ contains the images created by the scan-conversion and raster operations.
   a) CPU
   b) Frame Buffer
   c) Video Controller
   d) Display processor
5. NVC stands for _____.
   a) Normalized Viewing Coordinates
   b) Normalized viewing clipping
   c) Normalized Video Controller
   d) None of these
6. Which of the following are the adverse effects of scan conversion?
   a) Aliasing
   b) Staircase
   c) Unequal brightness
   d) All of these
7. Clipping window is also known as _____.
   a) Coordinate clipper
   b) Clipping coordinates
   c) Clipping ratio
   d) Clipping region

8. Translation, rotation, and Scaling are the basic _____.
   a) Coordinates
   b) Position Vectors
   c) Transformations
   d) Representations
9. PHIGS stands for _____.
10. The process of viewing a 2D scene is much _____ then the 3D viewing Process.
   a) Complex
   b) Simpler
   c) Composite
   d) Tricky

B] Very Short question **(5x2=10)**

i) What is resolution?
ii) What are the features of Inkjet printers?
iii) What is random scan display?
iv) Explain any two-output devices.
v) Applications of Computer Graphics?

PART B

Q2. Answer any four: **(4x5=20)**

i. What do you mean by interactive computer Graphics?
ii. What is Bezier Basis Function?
iii. What is video conferencing? Discuss the challenges related to such facilities.
iv. Explain: (A). Standard motions in key frame animation, (B) Image synthesis.
v. What is the necessity for 3D clipping algorithm? Explain any one 3D clipping algorithm.
vi. Give matrix for scaling in 2D transformation and explain.

PART C

Answer any three: **(3x10=30)**

Q4). What is composite transformation matrix? Explain it with suitable equations for translation, scaling and rotation.

Q5). Explain DDA algorithm. What are their advantages and disadvantages of DDA algorithm?

Q6). Assume that the coordinates of last chosen pixel is (x_i, y_i). The task is to choose the next one between the bottom pixel S and the top pixel T. if S is chosen, then $x_{i+1} = x_i + 1$ and $y_{i+1} = y_i$. If T is chosen, then $x_{i+1} = x_i + 1$ and $y_{i+1} = y_i + 1$. As shown in Figure, derive Bresenham's Line drawing algorithm.

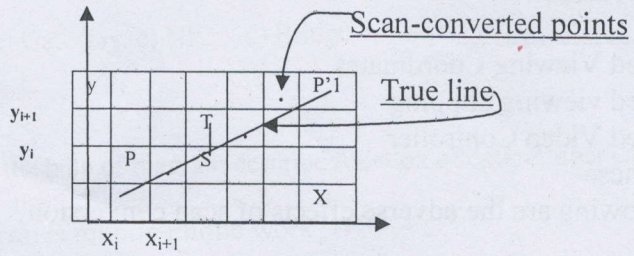

Fig. Scan converting a line

Q7). Write Cohen Sutherland line clipping algorithm? Use the Cohen Sutherland algorithm to clip line P1 (70, 20) and P2 (100, 10) against window lower left hand corner (50, 10) and upper right hand corner (80, 40).

Q8) .Construct a triangle ABC whose coordinates are A (4, 1), B (5, 2) and C (4, 3).
   (a) Perform a 45° rotation about the point (4, 1).
   (b) After rotation find out the reflected image about the y = (-x).
   (c) Magnify the triangle to twice its size while keeping "**C**" fixed