



ARKA JAIN University, Jharkhand

4th Semester Medical Examination – 2019-20

Subject: Operating System

Time: 3 Hours

Course: Polytechnic

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 **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) 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
 - iii) 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

1-c-x

- 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) Explain shortest 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 time 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 Medical Examination – 2019-20

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.
- **Part- B** contains **SIX** questions out of which **FOUR** questions are to be answered.
- **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. Illumination model is also known as _____.
 - a) Surface-rendering
 - b) Shading method
 - c) Lighting model
 - d) None of these
2. Which of the following are the applications of computer graphics?
 - a) Presentation graphics
 - b) Entertainment
 - c) CAD
 - d) All of these
3. _____ Contains the images created by the scan-conversion and raster operations.
 - a) CPU
 - b) Frame Buffer
 - c) Video Controller
 - d) Display processor
4. Which of the following are the adverse effects of scan conversion?
 - a) Aliasing
 - b) Staircase
 - c) Unequal brightness
 - d) All of these
5. Clipping window is also known as _____.
 - a) Coordinate clipper
 - b) Clipping coordinates
 - c) Clipping ratio
 - d) Clipping region
6. Translation, rotation, and Scaling are the basic _____.
 - a) Coordinates
 - b) Position Vectors
 - c) Transformations
 - d) Representations
7. Reflection is also known as _____.
 - a) Image reflection
 - b) Quaternion
 - c) RHVS
 - d) Mirror Reflection

8. _____ is the movement of pixels from one location to another.
- Block manipulation
 - Block transfer
 - Pixel transfer
 - None of these
9. Translation, rotation, and Scaling are the basic _____.
- Coordinates
 - Position Vectors
 - Transformations
 - Representations
10. The process of viewing a 2D scene is much _____ than the 3D viewing Process.
- Complex
 - Simpler
 - Composite
 - Tricky

B] Very Short question

(5x2=10)

- Explain any two-output devices.
- What is Digitizer?
- Define 3D transformations.
- What is shadow mask method?
- Explain Back face removal algorithm.

PART B

Q2. Answer any four:

(4x5=20)

- What do you mean by interactive computer Graphics?
- What is the necessity for 3D clipping algorithm? Explain any one 3D clipping algorithm.
- Consider the square A (1, 0) B (0, 0) C (0, 1) D (1, 1). Rotate the square ABCD by 45° clockwise about A (1, 0).
- Explain how virtual-reality systems can be used in design applications. What are some other applications for virtual-reality systems?
- What is meant by anti aliasing? Explain various methods used to develop anti-aliasing routines.

PART C

Q3. Answer any three:

(3x10=30)

- What is composite transformation matrix? Explain it with suitable equations for translation, scaling and rotation.
- Explain DDA algorithm. What are their advantages and disadvantages of DDA algorithm?
- What is Refresh Buffer? Identify the contents and organization of the refresh buffer for the case of raster and vector display.
- 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).
- Construct a triangle ABC whose coordinates are A (4, 1), B (5, 2) and C (4, 3).
 - Perform a 45° rotation about the point (4, 1).
 - After rotation find out the reflected image about the $y = -x$.
 - Magnify the triangle to twice its size while keeping "C" fixed



ARKA JAIN University, Jharkhand

4th Semester Medical Examination – 2019-20

Subject: Operating System

Course: Polytechnic

Time: 3 Hours

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 **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) 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?
- when process is scheduled to run after some execution
 - when process is unable to run until some task has been completed
 - when process is using the CPU
 - None of these
- c) A set of processes is deadlock if
- each process is blocked and will remain so forever
 - each process is terminated
 - all processes are trying to kill each other
 - none of the mentioned
- d) The address of the next instruction to be executed by the current process is provided by the
- CPU registers
 - Program counter
 - Process stack
 - Pipe
- e) Which scheduling algorithm allocates the CPU first to the process that requests the CPU first?
- first-come, first-served scheduling
 - shortest job scheduling
 - priority scheduling
 - none of the mentioned

- f) An operating system is a program that acts as an interface between the software, user and the _____
- Software
 - Register
 - Computer hardware
 - None of these
- g) Which one of the following is the deadlock avoidance algorithm?
- banker's algorithm
 - round-robin algorithm
 - elevator algorithm
 - kern's algorithm
- h) Program is a set of _____
- File
 - system
 - instruction
 - None of these
- i) To avoid deadlock
- there must be a fixed number of resources to allocate
 - resource allocation must be done only once
 - all deadlocked processes must be aborted
 - inversion technique can be used
- j) A Process Control Block (PCB) does not contain which of the following:
- Code
 - Stack
 - Bootstrap program
 - Data

(5x2=10)

B] Very Short question

- What is operating system?
- What is Real Time Systems.?
- What is Process?
- What is program?
- What is File?

PART B

Q.2). Answer any four:

(4x5=20)

- Write about the operating system services?
- What is CPU scheduling? State and explain its type.
- Explain what is file allocation and different types of file allocation.
- What is a kernel? State and explain different types of kernel.
- Explain in detail what is system call

- vi) Explain evolution of operating system?

PART C

Answer any three:

(3x10=30)

Q.3) Explain shortest 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 time 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 Medical Examination – 2019-20

Subject: Computer Graphics

Time: 3 Hours

Course: Poly_CS

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 **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 **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. Illumination model is also known as _____.
 - a) Surface-rendering
 - b) Shading method
 - c) Lighting model
 - d) None of these
2. Which of the following are the applications of computer graphics?
 - a) Presentation graphics
 - b) Entertainment
 - c) CAD
 - d) All of these
3. _____ Contains the images created by the scan-conversion and raster operations.
 - a) CPU
 - b) Frame Buffer
 - c) Video Controller
 - d) Display processor
4. Which of the following are the adverse effects of scan conversion?
 - a) Aliasing
 - b) Staircase
 - c) Unequal brightness
 - d) All of these
5. Clipping window is also known as _____.
 - a) Coordinate clipper
 - b) Clipping coordinates
 - c) Clipping ratio
 - d) Clipping region
6. Translation, rotation, and Scaling are the basic _____.
 - a) Coordinates
 - b) Position Vectors
 - c) Transformations
 - d) Representations
7. Reflection is also known as _____.
 - a) Image reflection
 - b) Quaternion
 - c) RHVS
 - d) Mirror Reflection

8. _____ is the movement of pixels from one location to another.
- Block manipulation
 - Block transfer
 - Pixel transfer
 - None of these
9. Translation, rotation, and Scaling are the basic _____.
- Coordinates
 - Position Vectors
 - Transformations
 - Representations
10. The process of viewing a 2D scene is much _____ than the 3D viewing Process.
- Complex
 - Simpler
 - Composite
 - Tricky

(5x2=10)

B] Very Short question

- Explain any two-output devices.
- What is Digitizer?
- Define 3D transformations.
- What is shadow mask method?
- Explain Back face removal algorithm.

PART B

(4x5=20)

Q2. Answer any four:

- What do you mean by interactive computer Graphics?
- What is the necessity for 3D clipping algorithm? Explain any one 3D clipping algorithm.
- Consider the square A (1, 0) B (0, 0) C (0, 1) D (1, 1). Rotate the square ABCD by 45° clockwise about A (1, 0).
- Explain how virtual-reality systems can be used in design applications. What are some other applications for virtual-reality systems?
- What is meant by anti aliasing? Explain various methods used to develop anti-aliasing routines.
- What is Bezier Basis Function?

PART C

Q3. Answer any three:

(3x10=30)

- What is composite transformation matrix? Explain it with suitable equations for translation, scaling and rotation.
- Explain DDA algorithm. What are their advantages and disadvantages of DDA algorithm?
- What is Refresh Buffer? Identify the contents and organization of the refresh buffer for the case of raster and vector display.
- 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).
- Construct a triangle ABC whose coordinates are A (4, 1), B (5, 2) and C (4, 3).

- Perform a 45° rotation about the point (4, 1).
- After rotation find out the reflected image about the $y = (-x)$.
- Magnify the triangle to twice its size while keeping "C" fixed