**Q.1 A) Multiple choice question. 10**

**1)** PCB stands for \_\_\_\_\_\_.

a) Program Control Block b) Program Central Block

c) Process Control Block d) Process Central Block

**2)** For DEADLOCK DETECTION \_\_\_\_\_\_ Graph is used in Single

Instance Resource Type.

a) Resource Allocation b) Variant

c) Wait-For-a d) None

**3)** \_\_\_\_\_\_ is the mechanism that brings a page into memory only when it

is needed.

a) Overlays b) Fragmentation

c) Demand Paging d) Segmentation

**4)** \_\_\_\_\_\_ scheduler select which processes should be brought into the

ready queue.

a) Real-term b) Long-term

c) Mid-term d) Short-term

**5)** Priority scheduling is \_\_\_\_\_\_.

a) Non-Pre-Emptive scheduling

b) Pre-Emptive scheduling

c) Fast scheduling

d) Page scheduling

**6)** Loading of different routines at EXECUTION TIME is known as

\_\_\_\_\_\_.

a) Dynamic Linking b) swapping

c) Dynamic Loading d) Dynamic Routine

**7)** A page fault rate is high in \_\_\_\_\_\_ page replacement algorithm.

a) SJF b) FIFO

c) LRU d) Optimal

**8)** A Directed edge from 𝑅𝑗 → 𝑃𝑖 in RAG is called as \_\_\_\_\_\_ Edge.

a) Request b) Assignment

c) Claim d) Wait

**9)** \_\_\_\_\_\_ is a process synchronization tool operates on two atomic

operations.

a) Socket b) Reader

c) Writer d) Semaphore

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**10)** Paging suffers from External fragmentation.

a) TRUE b) FALSE

**B) Define the following terms. 06**

1) Process.

2) Co-operating Processes

3) Throughput

4) Page fault

5) Boot block

6) Virtual Machine

**Q.2 Solve any Eight of the following. 16**

**a)** Define Context Switching with its Drawback.

**b)** List TWO differences between process and program.

**c)** Define Thrashing.

**d)** List out any FOUR usage of Operating System.

**e)** Define Internal and External Fragmentation.

**f)** What is CPU Bound Process?

**g)** Define Logical Address Space.

**h)** State the purpose of Overlays.

**i)** Define Race Condition.

**j)** What is Compaction?

**Q.3 A) Attempt any Two of the following. 10**

1) Explain OS Structure with Diagram.

2) Write Note on Swapping.

3) Consider Following System Snapshot,

Process P1 P2 P3 P4 P5

Arrival Time 0 1 2 3 4

CPU Burst 5 9 7 2 4

Prepare Gantt chart and calculate Average Waiting and Average

Turnaround Time using, RR Scheduling Algorithm with Time Slice= 2

m/s

**B)** Explain Process States with Process Life Cycle Diagram. **06**

**Q.4 A) Attempt any Two of the following. 08**

1) Write a note on RAG.

2) State any FOUR file types.

3) Explain TWO LEVEL Directory Structure in brief.

**B)** Calculate Number of Page Fault Rate for following Reference String with

Frame Size = 3 using,

**08**

1) FIFO

2) Optimal

3) LRU

Reference String → 5,0,2,1,0,3,0,2,4,3,0,3,2,1,3,0,1,5.

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**Q.5 Attempt any Two of the following. 16**

**a)** Explain Contiguous File Allocation Method.

**b)** Define Schedulers and explain all 3 types of schedulers.

**c)** Consider following system scenario,

MAX

R1 R2 R3 R4

P1 0 0 1 2

P2 1 7 5 0

P3 2 3 5 6

P4 0 6 5 2

P5 0 6 5 6

ALLOCATION

R1 R2 R3 R4

P1 0 0 1 2

P2 1 0 0 0

P3 1 3 5 4

P4 0 6 3 2

P5 0 0 1 4

AVAILABLE

R1 R2 R3 R4

1 5 2 0

**Solve by using Bankers Algorithms and find out,**

1) Contents of NEED Matrix.

2) Is System is in safe state?

3) If Process P2 arrives with request (0 4 2 0) then can it granted Or

NOT.