(f) Define recruitment.

(g) Explain the concept of burn out.

(h) Write about two psychological tests used in selection process.

SECTION – B

2. Attempt any two parts of the following: 2×6=12

(a) Hawthorne studies can be considered the foundation of industrial psychology. Elaborate citing reasons for your answer.

(b) Discuss the major components of human relational approach.

(c) Elucidate upon the need for training the employees in the organization and discuss some methods of training.

(d) Discuss the psychological interventions strategies for reducing accidents in industries.

SECTION – C

Note :– Attempt all questions. Attempt any two parts from each question. 5×8=40

BCS 3402

S.No. : 45

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Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 33216 Roll No.

B. Tech. Examination 2022-23

(Even Semester)

OPERATING SYSTEM

Time : Three Hours] *[Maximum Marks : 60*

Note :– Attempt all questions.

SECTION – A

1. Attempt all parts of the following : 8×1=8

(a) What is difference between preemptive and non-preemptive sheduling?

(b) Why there is a need to synchronize process?

(c) What is menat by critical section?

(d) Define compaction.

(e) What is the need of segmentation?

(f) Define the term file. List various attributes of a file.

(g) Why is disk sheduling important?

(h) Define starvation in deadlock.

SECTION – B

2. Attempt any two parts of the following : 2×6=12

(a) What do you mean by page-faults? When do page-fault occur? Describe the action taken by the O. S. when page fault occurs.

(b) What is deadlock? List and explain four necessary conditions for deadlock to occur? Explain different algorithms for prevention and avoidance of deadlocks?

(c) Consider the following four processes, with length of CPU burst time given in milliseconds:

Process	Arrival Time (ms)	Burst Time (ms)
P_1	1	6
P_2	1	5
P_3	2	5
P_4	2	3

Find average waiting time and turn around fine for given process using FCFS and SJF algorithms.

(d) What do you mean by file management? Explain the various access and allocation methods of files in details.

SECTION – C

Note :- Attempt all questions. Attempt any two parts from each question. 5×8=40

3. (a) Explain the classical problems of synchronization with example.

(b) Explain Banker's algorithm to avoid deadlock. Is the system in a safe state for the given table :

Process	Allocation	Max	Available
	A B C D	A B C D	A B C D
P_0	0 0 1 2	0 0 1 2	1 5 2 0
P_1	1 0 0 0	1 7 5 0	1 5 3?
P_2	1 3 5 4	2 3 5 6	
P_3	0 6 3 2	0 6 5 2	
P_4	0 0 1 4	0 6 5 6	

(c) Give an example of producer-consumer problem, indicating the reasons for inconsistency that can arise due to race conditions.

4. (a) Explain different paging techniques. Why paging is combined with segmentation?

(b) Find the number of page faults using first in first out (FIFO) and least recently used (LRU) page replacement algorithm for given series of page references if the size of frame is 4.

7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1

(c) What is thrashing? How does the system detect thrashing? What can the system do to eliminate the problem?

5. (a) Explain the FCFS disk-scheduling algorithm. Find out number of head movements for FCFS for a queue from 0-199 and current head pointer is at 53.

98, 183, 37, 122, 14, 124, 65, 67

(b) What is role of scheduler? Differentiate among short, medium and long term scheduler.

(c) Explain recovery from deadlock and steps for recovery.

6. (a) What is fragmentation? Explain the difference between internal fragmentation and external fragmentation.

(b) What is virtual memory? What are its various advantages?

(c) Explain the implementation of semaphores in attaining process synchronization.

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