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COA 403 **Reg. No. ……**

CREDIT BASED FOURTH SEMESTER B.C.A. DEGREE EXAMINATION
APRIL 2012
B. C. A.

OPERATING SYSTEM

Time: 3 Hrs **Max. Marks: 120**

PART – A

Answer any 15 questions from the following: **15x2=30**

1. a) Write any two operating system services.
   b) What is a process?
   c) What is a file?
   d) Define thread.
   e) Define context switch.
   f) Mention any two activities in connection with file management process.
   g) What do you mean by protection and security?
   h) What is deadlock?
   i) List any two file types with extension.
   j) Define dispatcher.
   k) Wha is turn around time?
   l) What is a binary semaphore?
   m) What is segmentation?
   n) Write any two advantages of contiguous allocation.
   o) What is hashed page table?
   p) What do you mean by aging?
   q) What is throughout?
   r) Write any two file operations.

PART – B

Answer any two questions from each unit:

UNIT – I

2. a) Explain the advantages of time shared systems over multiprogrammed systems.
   b) Explain the following components of an Operating System.
      (i) Secondary Storage Management
      (ii) Memory Management **(7+8)**

3. a) What is a PCB? Explain the contents of PCB with a neat diagram.

b) Explain the process management component of an Operating System. **(8+7)**

4. a) Explain the different schedulers in an Operating System.
   b) Explain the benefits of multithreaded programming. **(7+8)**

UNIT – II

5. a) Explain FCFS and SJF scheduling with examples and compare the same.
   b) Explain two process solution to critical section problem. **(4+6+5)**

6. a) Draw a Gantt chart for the following and calculate the average waiting time using Round Robin Scheduling algorithm with time quantum of 4 milliseconds.

Process	Burst Time
P1	24
P2	3
P3	3

   b) Explain 'wait - for' graph with an example.
   c) What are the necessary conditions for deadlock to occur? **(5+6+4)**

7. a) Explain Resource Allocation Graph with an example.
   b) Explain briefly how to recover from deadlock.
   c) Explain the multilevel queue scheduling. **(4+6+5)**

UNIT – III

8. a) What do you mean by internal and external fragmentation? Explain.
   b) Explain the paging concept with a diagram.
   c) Write a short note on swapping. **(6+5+4)**

9. a) Explain the concept of demand paging used to implement virtual memory.
   b) Consider the following page reference string:
   7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1
   How many page faults would occur for the following page replacement algorithm, assuming three frames. (i) LRU algorithm (ii) Optional replacement algorithm **(7+8)**

10. a) Explain the file attributes.
    b) Briefly explain the linked allocation method.
    c) Explain the sequential and direct access methods of a file. **(5+5+5)**

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COA 403 **Reg. No. ……**

CREDIT BASED FOURTH SEMESTER B.C.A. DEGREE EXAMINATION
APRIL 2013
B. C. A.

OPERATINMG SYSTEMS

Time: 3 Hrs **Max. Marks: 120**

PART – A

Note: Answer any 15 questions from the following: **15x2=30**

1. a) What is operating system? Give an example.
   b) What is spooling? Write the benefits of spooling.
   c) Which are the different states of a process?
   d) Define turnaround time.
   e) Mention any two activities in connection with file management process.
   f) Define context switch.
   g) List any two disadvantages of contiguous allocation.
   h) Differentiate one-to-one model verses many to one model of thread.
   i) Draw a resource allocation graph for deadlock avoidance.
   j) What is deadlock?
   k) What do you mean by binary semaphore?
   l) Write any two advantages of Round-Robin scheduling.
   m) Define paging.
   n) What is thrashing?
   o) List any two file types with extension names.
   p) What is segmentation?
   q) Define execution time.
   r) What is hashed page table?

PART – B

Note: Answer any two questions from each unit:

UNIT – I

2. a) Explain batch processing system and its limitations.
   b) Explain the following components of operating system.
      a) Main Memory Management

b) Protection System **(7+8)**

3. a) What is a PCB? Explain the contents of PCB with a neat diagram.
   b) Explain the different schedulers in an operating system. **(8+7)**

4. a) Define thread. Explain different multithreading models.
   b) Explain any five services of an Operating System. **(8+7)**

UNIT – II

5. a) Write a short note on the following?
      i) Preemptive scheduling
      ii) Non-preemptive scheduling
   b) Consider the following set of persons with the length of CPU – burst time given in milliseconds.

Process	Burst Time	Arrival Time
P_1	6	2
P_2	8	1
P_3	7	0
P_4	3	3

   Draw gantl chart and find average waiting time using SJF scheduling. **(8+7)**

6. a) Explain the solution to the critical section problem.
   b) List out necessary and sufficient condition for deadlock. **(8+7)**

7. a) Explain Round Robin scheduling algorithm with example.
   b) What are the criterions for CPU scheduling? Explain in detail. **(9+6)**

UNIT – III

8. a) Explain tree structured directory.
   b) With the help of an example, explain FIFO page replacement algorithm. **(7+8)**

9. a) Explain first fit, best fit and worst fit storage allocation.
   b) Write a note on i) contiguous allocation
      ii) Linked allocation **(7+8)**

10. a) Consider the following page reference string
    7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1

How many page faults would occur for the following using LRU replacement algorithm, by considering 3 frames?

b) Explain the sequential and direct access methods of a file.

(8+7)

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COA 403 Reg.No. ……

CREDIT BASED FOURTH SEMESTER B.C.A. DEGREE EXAMINATION
APRIL 2014
B.C.A
OPERATING SYSTEMS

Time: 3 Hrs **Max. Marks: 120**

PART – A

1. Answer any Fifteen questions from the following: **15x2=30**

a. What is Operating System? Give an example.
b. What is Batch processing system?
c. Define Context Switch.
d. Write any two properties of time shared system.
e. Write any two functions of dispatcher.
f. What is Segmentation?
g. Define thread. Write any one advantage of multithreaded process.
h. Differentiate between
   i) Swapper and Lazy Swapper
   ii) Swapper and Pager
i. Explain the two types of threads.
j. What do you mean by I/O bound process and CPU bound process?
k. What is Spooling? Write the Benefits of spooling.
l. Write any two services of operating system.
m. What is Semaphore?
n. What is Page fault?
o. Define the term Starvation.
p. Write any four different types of files.
q. Explain the two hardware support for demand paging.
r. Write any two advantages of Linked allocation over continuous allocation.

PART – B

Answer any TWO questions from each unit:

UNIT – I

2. a. Explain the different states of a process with the help of a neat diagram.
b. Explain the functions of two types of schedulers.
c. Explain Batch Processing system. Write any two disadvantages of it. **(5+4+6)**

3. a. What do you mean by critical section? Write two process solution for critical section problem.
b. Explain Different multithreading models. **(8+7)**

4. a. Explain the process scheduling with the help of queueing diagram.
b. Write a short note on Dining Philosopher's Problem. **(8+7)**

UNIT – II

5. a. Consider the following set of processes with the length of the CPU burst given in mili seconds.

Process	Burst-Time	Time of Arrival
P_1	10	3
P_2	1	1
P_3	2	3
P_4	1	4
P_5	5	2

i) Draw the Gantt charts that illustrate the execution of these processes using First come First serve strategy.
ii) Calculate waiting time and turn around time for each process.

b. How do you prevent the occurance of a deadlock? **(7+8)**

6. a. Explain the Round Robin CPU scheduling algorithm with the help of an example.
b. What is a Critical Section Problem? Explain how Semaphore will act as Synchronization tool to solve the critical section problem. **(7+8)**

7. a. Explain Resource Allocation Graph. How a deadlock can be avoided using Resource Allocation Graph? Explain with the help of an example.
b. Write a note on Readers-Writers Problem. **(8+7)**

UNIT – III

8. a. Define swapping. Explain the swapping process in detail.
b. What is Page Replacement? Explain FIFO page replacement Algorithm. What is Belady's anomaly? **(7+8)**

9. a. How many page faults occurs for the following reference string, with four page frames?
1, 2, 3, 4, 5, 3, 4, 1, 6, 7, 8, 7, 8, 9, 7, 8, 9, 5, 4

i) using - optimal page replacement Algorithm and Least Recently used Algorithm
ii) which algorithm has minimum number of page faults?

b. Explain Continous Allocation method to store the files. **(8+7)**

10. a. Explain "Tree-Structured Directories" and "General Graph directory" in detail.
b. Explain the Demand Paging process in detail. **(8+7)**

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COA 403 Reg. No. ……

CREDIT BASED FOURTH SEMESTER B.C.A. DEGREE EXAMINATION
APRIL 2015
B.C.A
OPERATING SYSTEMS

Time: 3 Hrs **Max. Marks: 120**

PART – A

1. Answer any Fifteen questions from the following: **15×2=30**

a. Write any two operating system services.
b. What is a real-time system?
c. What is a process?
d. Write a note on response time.
e. Define thread.
f. What do you mean by CPU scheduling?
g. What is context switching?
h. What is a dispatcher?
i. List any two file types with extension names.
j. What are semaphores?
k. Write the purpose of resource allocation graph.
l. What is segmentation?
m. What is logical and physical address space?
n. What is a deadlock?
o. What is compile time?
p. What do you mean by aging?
q. Write any two file operations.
r. What is hashed page table?

PART – B

Answer any TWO questions from each unit:

UNIT – I

2. a. Explain any five major activities of operating system with regard to process management.
b. List the advantages of time shared systems over multi programmed systems. **(7+8)**

3. a. What is cooperating process? Explain.
b. List and explain any five services of an operating system. **(7+8)**

4. a. Explain the different schedulers in an operating system.
b. Explain the benefits of multithreaded programming. **(7+8)**

UNIT – II

5. a. Explain FCFS and SJF scheduling with examples and compare the same.
b. Explain wait for graph with an example. **(8+7)**

6. a. Explain mutual-exclusion implementation with TestAndSet.
b. Consider the following set of process with the length of CPU-burst time given in milliseconds.

Process	Burst time	Priority
P_1	10	3
P_2	1	1
P_3	2	4
P_4	1	5
P_5	5	2

Process have arrived in order P_1, P_2, P_3, P_4, P_5 at time t = 0, schedule the process under priority scheduling. Find the average waiting time using any two algorithms. **(7+8)**

7. a. Explain briefly how to recover from deadlock.
b. What are the criterion for CPU scheduling? Explain in detail.
c. Explain Resource Allocation graph with an example. **(6+5+4)**

UNIT – III

8. a. Explain paging concept with a neat diagram.
b. Write a note on swapping.
c. Explain the various file attributes. **(7+4+4)**

9. a. Explain first fit, best fit and worst fit storage allocation.
b. Explain second-chance Algorithm. **(7+8)**

10. a. Consider the following page reference string.

7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1. How many page faults would occur for the following using LRU replacement algorithm, by considering 3 frames?

b. Explain demand paging technique. **(8+7)**

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COA 403.1 Reg.No. .....

CREDIT BASED FOURTH SEMESTER B.C.A. DEGREE EXAMINATION APRIL 2016

B.C.A

SOFTWARE ENGINEERING

Time: 3 Hrs Max. Marks: 120

PART – A

1. **Answer any 15 questions from the following:** 15x2=30
   a. Give IEEE definition of software engineering.
   b. What is corrective maintenance?
   c. Define reliability and reusability.
   d. What are the basic objectives of software engineering?
   e. Differentiate between software project and software process.
   f. Expand KLOC, CCB.
   g. What is status accounting and auditing?
   h. Mention the basic activities involved in requirement process.
   i. List any 2 common errors while designing the DFD.
   j. What is throwaway prototyping?
   k. What is design methodology?
   l. What is top-down and bottom-up design approach?
   m. What is stepwise refinement?
   n. Define error, fault and failure.
   o. What is information hiding?
   p. Define testing.
   q. What are test cases?
   r. What is applicability axiom?

PART – B

Answer any TWO Questions from each unit:

UNIT – I

2. a. Briefly explain the Software problem.
   b. List the prototyping model.
   c. Explain the Software configuration item (SCI) (6+5+4)

3. a. Explain the spiral model with the help of a diagram.
   b. Explain the SCM life cycle of an item.
   c. Explain different phases of development process. (6+3+6)

4. a. Write a note on capability maturity model.
   b. With a help of a diagram, explain the working of waterfall model.
   c. Explain any four quality attributes of software engineering. (5+6+4)

UNIT – II

5. a. Explain why SRS is needed?
   b. List and explain different levels of cohesion.
   c. Write a note on i) Design walkthroughs
      ii) Consistency checkers **(4+6+5)**

6. a. Write a note on SDM strategy.
   b. Explain Logic/Algorithm design.
   c. With the example, explain structure chart. **(6+4+5)**

7. a. Explain the activities of requirement process with a diagram.
   b. Explain different types of modules used in structure chart.
   c. Write a note on verification in the detailed design phase. **(5+5+5)**

UNIT – III

8. a. Explain the test oracles with the help of a diagram.
   b. Explain the concept of structured programming.
   c. Explain cause-effect graphing with the help of a diagram. **(4+5+6)**

9. a. Explain equivalence class partitioning.
   b. Write a note on symbolic execution and execution tree.
   c. Explain control flow based testing with suitable example. **(4+6+5)**

10. a. Write a note on internal documentation.
    b. Explain data flow based testing with an example.
    c. Write a note on top-down and bottom-up approaches in coding. **(4+6+5)**

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