Write the following information in the first page of Answer Script before starting answer

ODD SEMESTER EXAMINATION: 2020-21

Exam ID Number_____

Course_____ Semester_____

Paper Code_____Paper Title_____

Type of Exam: _____ (Regular/Back/Improvement)

Important Instruction for students:

1. Student should write objective and descriptive answer on plain white paper.
2. Give page number in each page starting from 1st page.
3. After completion of examination, Scan all pages, convert into a single PDF, rename the file with Class Roll No. (2019MBA15) and upload to the Google classroom as attachment.
4. Exam timing from 10am – 1pm (for morning shift).
5. Question Paper will be uploaded before 10 mins from the schedule time.
6. Additional 20 mins time will be given for scanning and uploading the single PDF file.
7. Student will be marked as ABSENT if failed to upload the PDF answer script due to any reason.

MASTER of COMPUTER APPLICATION
THIRD SEMESTER
OPERATING SYSTEM
MCA – 303 [REPEAT]

Duration : 3 hrs. **Full Marks : 70**

〔 PART-A: Objective 〕

Time : 20 min. **Marks : 20**

Choose the correct answer from the following: ***1×20=20***

1. When does page fault occur?
a. The page is present in memory.
b. The deadlock occurs
c. The page does not present in memory
d. The buffering occurs

2. Banker's algorithm is used?
a. To prevent deadlock
b. To deadlock recovery
c. To solve the deadlock
d. None of these

3. What is bootstrapping called?
a. Cold boot
b. Cold Hot Boot
c. Cold Hot Strap
d. Hot Boot

4. A Process Control Block(PCB) does not contain which of the following?
a. Code
b. Stack
c. Bootstrap Program
d. Data

5. Which module gives control of the CPU to the process selected by the short-term scheduler?
a. dispatcher
b. interrupt
c. scheduler
d. none of the mentioned

6. The processes that are residing in main memory and are ready and waiting to execute are kept on a list called _____
a. job queue
b. ready queue
c. execution queue
d. process queue

7. CPU scheduling is the basis of _____
a. multiprocessor systems
b. multiprogramming operating systems
c. larger memory sized systems
d. None of these

8. Which of the following are forms of malicious attack?
a. Theft of information
b. Modification of data
c. Wiping of information
d. All of the mentioned

9. What is a reusable resource?
a. that can be used by one process at a time and is not depleted by that use
b. that can be used by more than one process at a time
c. that can be shared between various threads
d. none of the mentioned

10. Which process can be affected by other processes executing in the system?

a. cooperating process **b.** child process
c. parent process **d.** init process

11. To avoid deadlock _____

a. there must be a fixed number of resources to allocate **b.** resource allocation must be done only once
c. all deadlocked processes must be aborted **d.** inversion technique can be used

12. In Operating Systems, which of the following is/are CPU scheduling algorithms?

a. Round Robin **b.** Shortest Job First
c. Priority **d.** All of the mentioned

13. In contiguous memory allocation _____

a. each process is contained in a single contiguous section of memory
b. all processes are contained in a single contiguous section of memory
c. the memory space is contiguous
d. none of the mentioned

14. Which of the following is the least secure method of authentication?

a. Key card **b.** fingerprint
c. retina pattern **d.** Password

15. Which one of the following explains the sequential file access method?

a. random access according to the given byte number
b. read bytes one at a time, in order
c. read/write sequentially by record
d. read/write randomly by record

16. Which one of the following error will be handle by the operating system?

a. power failure **b.** lack of paper in printer
c. connection failure in the network **d.** all of the mentioned

17. Which one of the following is the address generated by CPU?

a. physical address **b.** absolute address
c. logical address **d.** none of the mentioned

18. Which of the following condition is required for a deadlock to be possible?

a. mutual exclusion
b. a process may hold allocated resources while awaiting assignment of other resources
c. no resource can be forcibly removed from a process holding it
d. all of the mentioned

19. Logical memory is broken into blocks of the same size called _____

a. frames **b.** pages
c. backing store **d.** none of the mentioned

20. To create a file _____

a. allocate the space in file system
b. make an entry for new file in directory
c. allocate the space in file system & make an entry for new file in directory
d. none of the mentioned

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〔 PART-B : Descriptive 〕

Time : 2 hrs. 40 min. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1. What are the three main purposes of an operating system? What is the main advantages of multiprogramming? **10**

2. Describe the differences among short term, medium term and long term scheduling. Explain different type of storage structure. **5+5=10**

3. What is process? Describe all the states of a process. Explain Process Control Block. **2+4+4 =10**

4. Consider the following set of process, with the length of the CPU burst time given in milliseconds: **5+3+2 =10**

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

a. Draw the Gantt charts for above process using FCFS, SJF and RR(with quantum=1) scheduling.

b. Calculate the turnaround time for each process for every scheduling.

c. Find out the schedule which results in the minimum average waiting time.

5. **a.** What is deadlock? Write about the conditions for deadlock prevention. **6+4=10**

b. define safe-state and resource allocation graph

6. What is paging? Compare logical and physical address space. Consider the frame reference 7 0 1 2 0 3 0 4 2 3 0 3 2 3 with 3 page frame. Find the no. of page fault using FIFO and LRU **2+2+6 =10**

7. **a.** Define File. What are the different methods for space allocation? **5+5=10**

b. Describe the types of security need by operating system.

8. Write short notes on ***any four*** ***2.5×4=10***

   a. Preemptive and non-preemptive scheduling
   b. Multilevel queue scheduling and multilevel feedback queue scheduling
   c. Swapping
   d. Segmentation
   e. System threats

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