b. Define 'paging in virtual memory' and explain with neat sketch.

32. a. Explain the various disk scheduling techniques.

(OR)

b. Define 'file and file system' and explain the various file organizations with examples.

* * * * *

Reg. No.															

B.Tech. DEGREE EXAMINATION, DECEMBER 2018

1st to 6th Semester

15CS302J – OPERATING SYSTEMS

(For the candidates admitted during the academic year 2015-2016 to 2017-2018)

Note:

(i) **Part - A** should be answered in OMR sheet within first 45 minutes and OMR sheet should be handed over to hall invigilator at the end of 45th minute.

(ii) **Part - B** and **Part - C** should be answered in answer booklet.

Time: Three Hours Max. Marks: 100

PART – A (20 × 1 = 20 Marks)

Answer **ALL** Questions

1. The API gives a program access to the _____ resources
   (A) Software (B) Hardware
   (C) Process (D) Application

2. The primary job of an operating system is to _____.
   (A) Command resources (B) Manage resources
   (C) Provide utilities (D) Be user friendly

3. Privilege instructions are executed in _____.
   (A) User mode (B) Kernel mode
   (C) System mode (D) Server mode

4. Which is a system call used to create a new process?
   (A) Create ( ) (B) Open ( )
   (C) Fork ( ) (D) New ( )

5. Thread is a _____ process.
   (A) Heavy weight (B) Light weight
   (C) Uni (D) Multi

6. A collection of program, data, stack and attributes is referred as _____.
   (A) Process state (B) Process block
   (C) Process control (D) Process image

7. _____ program switches the processor from one process to the other
   (A) Spawning (B) Trace
   (C) Dispatcher (D) Preemption

8. The state in which the thread waits until the processor is made available
   (A) Standby (B) Ready
   (C) Running (D) Waiting

9. The banker's algorithm is used
   (A) To rectify deadlock (B) To detect deadlock
   (C) To prevent deadlock (D) To solve deadlock

10. Which of the following scheduling algorithms is non preemptive?
   (A) FIFO (B) Round robin
   (C) SJF (D) Priority

11. A direct method of deadlock prevention is to prevent the occurrence of _____.
   (A) Mutual exclusion (B) Hold and wait
   (C) Circular waits (D) Non preemption

12. Mutex is similar to
   (A) Spin locks (B) Event blocks
   (C) Binary semaphore (D) Condition variable

13. The system spends most of its time swapping pieces rather than executing instructions is called _____.
   (A) Simple paging (B) Virtual memory paging
   (C) Thrashing (D) Segmentation

14. A process refers to 5 pages A, B, C, D, E in the order: A, B, C, D, A, B, E, A, B, C, D, E. If the page replacement algorithm is FIFO, the number of page transfers with an empty internal store of 3 frames is
   (A) 10 (B) 9
   (C) 8 (D) 7

15. Physical memory is broken into fixed sized blocks called _____.
   (A) Frames (B) Pages
   (C) Segments (D) Tracks

16. The _____ is used as an index into the page table.
   (A) Page offset (B) Page number
   (C) Page count (D) Page bit

17. A _____ is a collection of related fields that can be treated as a unit by some application program.
   (A) Database (B) File
   (C) Record (D) Table

18. When to users keep a sub directory in their own directories, the structure being referred to is _____.
   (A) Tree structure (B) Cyclic graph directory structure
   (C) Two level directory structure (D) Acyclic graph directory

19. The set of tracks that are at one arm position make up
   (A) Magnetic disks (B) Electrical disks
   (C) Cylinders (D) Assemblies

20. RAID level _____is also known as block interleaved parity organization and used block level striping and keeps a parity block on a separate disk
   (A) 1 (B) 2
   (C) 3 (D) 4

PART – B (5 × 4 = 20 Marks)
Answer **ANY FIVE** Questions

21. Discuss the objectives of operating system.

22. Compare user level threads and kernel level threads.

23. Write short notes on dispatcher program.

24. Define 'mutual exclusion' and mention its requirement.

25. Discuss the process control block with a neat diagram.

26. Mention the function of partitioning.

27. Write briefly about disk scheduling.

PART – C (5 × 12 = 60 Marks)
Answer **ALL** Questions

28. a. Explain in detail about the basic elements of an operating system.

(OR)

b. Define interrupts and explain its types.

29. a. Explain five-state process model with its transition diagram.

(OR)

b. Mention the types of threads and explain it with combined approaches.

30. a. Write short notes on mutual exclusion and semaphores.

(OR)

b. Consider the following five processes, with the length of CPU burst time given in milliseconds. Consider the FCFS, non-preemptive SJF and round robin (quantum = 1 ms) scheduling algorithms. Which algorithm give the minimum average waiting time? Discuss it.

Process	Arrival time	Burst time
A	0	3
B	2	6
C	4	4
D	6	5
E	8	2

31. a. Explain fixed and dynamic partitioning with suitable examples.

(OR)