Reg. No.															

B.Tech. DEGREE EXAMINATION, JUNE 2017
Fifth Semester

CS1011 – OPERATING SYSTEMS
(For the candidates admitted during the academic year 2013 – 2014 and 2014 -2015)

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. Which type of interrupt will be generated when power failure occurs?
   (A) Program interrupt (B) Time interrupt
   (C) I/O interrupt (D) Hardware interrupt

2. In DMA module transfer, processor will be involved during
   (A) Beginning (B) End
   (C) Throughout the transfer (D) Both at the beginning and end

3. When a new block of data is read into the cache, _____ determines which cache location the block will copy?
   (A) Cache size (B) Write policy
   (C) Mapping function (D) Replacement algorithm

4. The processing required for a single instruction is called an
   (A) Instruction fetch (B) Instruction cycle
   (C) Instruction execute (D) Data processing

5. The process has waited longer than a specified maximum for a certain event to occur
   (A) Time overrun (B) Time limit exceeded
   (C) Bounds violation (D) Parent termination

6. Allocation of address space to process is done through
   (A) Process management (B) Memory management
   (C) I/O management (D) Disk management

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

8. The collection of program, data, stack and attributes are referred to as
   (A) Process image (B) Process table
   (C) Process control block (D) Process location

9. Relationship between the processes unaware of each other
   (A) Competition (B) Cooperation b sharing
   (C) Cooperation by communication (D) Cooperation by address

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

11. A semaphore that does not specify the order in which processes are removed from the queue is called
   (A) Strong semaphore (B) Weak semaphore
   (C) Binary semaphore (D) Counting semaphore

12. A monitor supports synchronization by the use of
   (A) Semaphores (B) Condition variables
   (C) Mutex (D) Critical resource

13. The address of a storage location in main memory
   (A) Address space (B) Real address
   (C) Virtual address (D) Virtual address space

14. Demand is which policy type of operating system for virtual memory
   (A) Fetch policy (B) Placement policy
   (C) Cleaning policy (D) Replacement policy

15. _____ shows the frame location for each page of the process
   (A) Page table (B) Process table
   (C) Frame table (D) Logical address

16. _____ choose among the resident pages of the process that generated the page fault in selecting a page to replace
   (A) Global replacement policy (B) Local replacement policy
   (C) Fixed allocation (D) Variable allocation

17. In which disk scheduling algorithm, control outside of disk queue management is done
   (A) Random scheduling (B) First-in-first-out
   (C) Priority by process (D) Last-in-first-out

18. Volume is which type of information element of a file directory
   (A) Basic information (B) Address information
   (C) Access control information (D) Usage information

19. On a movable-head system, the time taken to position the head at the track is known as
   (A) Rotational delay (B) Access time
   (C) Seek time (D) Transfer time

20. Usually the first in each record is referred as
   (A) Key field (B) File
   (C) Direct file (D) Basic file

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

21. Explain about interrupts and its types.

22. Write about the multi threading process models. How it is different from single threaded process models.

23. With a neat diagram explain simple process control block.

24. What is a semaphore? Mention its uses.

25. Discuss on readers / writes problem.

26. What is partitioning, paging and segmentation?

27. What is I/O buffering and disk cache?

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

28. a. Explain about evolution of operating system.

(OR)

b. Write short note on
   (i) Memory hierarchy
   (ii) Cache memory
   (iii) Direct memory access.

29. a. Describe the following process models with state transition diagram
   (i) Two-state (3 Marks)
   (ii) Five-state (3 Marks)
   (iii) With two suspend states. (6 Marks)

(OR)

b.i. List and explain types of threads with neat diagram.

ii. Explain about the thread states with neat state transition diagram.

30. a. Illustrate with example the different types of scheduling algorithms with examples.

(OR)

b.i. What is a deadlock?

ii. Explain about dead lock prevention, avoidance and detection with example.

31. a. Discuss and explain about the various page replacement algorithms.

(OR)

b. Write a detailed note on address translation and inverted page table structure.

32. a. Explain about file allocation and its various methods in allocation.

(OR)

b. Discuss about various disk scheduling algorithms.

* * * * *