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SARDAR PATEL UNIVERSITY  
External Examination  
B. Sc. – Computer Science – Fourth Semester  
US04CCSC02: Operating Systems  
11<sup>th</sup> April, Monday, 2016

Time: 10:30am to 01:30pm

Total Marks: 70

Q-1 Select an appropriate option.

10

- 1 A file is a collection of related information defined by its \_\_\_\_\_.  
(a) reader (b) creator (c) user (d) none of above
- 2 The full form of JVM is \_\_\_\_\_.  
(a) Java Virtuality Machine (b) Java Virtual Machine  
(c) Java Virtue Machine (d) None of above
- 3 Multi-user operating system allows \_\_\_\_\_ users to run programs at the same time.  
(a) Two (b) Three (c) Many (d) Ten
- 4 The full form of PCB is \_\_\_\_\_.  
(a) Process Control Block (b) Process Central Block  
(c) Programming Control Block (d) Programming Central Block
- 5 The round-robin (RR) scheduling algorithm is designed especially for \_\_\_\_\_.  
(a) Time sharing systems (b) Time saving systems  
(c) Multi user system (d) None of above
- 6 A DMA module controls the exchange of data between \_\_\_\_\_ and an I/O module.  
(a) Main memory (b) Secondary memory  
(c) Intermediate memory (d) None of above
- 7 An address generated by the CPU is commonly referred as \_\_\_\_\_.  
(a) Physical Address (b) Logical Address  
(c) Hiding Address (d) None of above
- 8 The purpose of virtual memory is to \_\_\_\_\_ the address space.  
(a) Enlarge (b) Narrow (c) Broad (d) All of above
- 9 A producer process produces information that is consumed by a \_\_\_\_\_.  
(a) consumer process (b) virtual process  
(c) indirect process (d) none of above
- 10 The concurrent processes executing in the operating system may be either independent processes or \_\_\_\_\_.

- (a) Combine processes      (b) Cooperating processes  
 (c) Join processes          (d) None of above

Q-2 Answer the following questions. (Any TEN) 20

- 1 What is Operating System?
- 2 List the activities of OS in File Management.
- 3 What is Kernel Call?
- 4 What is block – oriented device?
- 5 What is Scheduler? Explain.
- 6 What is Priority Scheduling?
- 7 Differentiate between Logical and Physical Address Space.
- 8 What is Segmentation?
- 9 What is Clock Page Replacement Algorithm?
- 10 What is Process Synchronization?
- 11 What is Cooperating Processes?
- 12 What is critical – section problem?

- Q-3
- (a) Explain the Memory Management function of an Operating System. 5  
 (b) Explain the Multi-user Operating System. 5

**OR**

- Q-3
- (a) Explain in brief the Client-Server model. 5  
 (b) Explain the Distributed Operating System. 5

- Q-4
- (a) Explain in brief the DMA block diagram. 5  
 (b) Explain in brief the Process State and Transitions. 5

**OR**

- Q-4
- (a) Explain in detail I/O buffering. 5  
 (b) Write short note on Process Termination. 5

- Q-5
- (a) Explain in detail the 'Address Bindings'. 5  
 (b) What is Contiguous Memory Allocation? Explain. 5

**OR**

- Q-5
- (a) Explain the Demand Paging along with its advantages and disadvantages. 5  
 (b) What is Page Replacement Algorithm? Explain Optimal Page Replacement Algorithm. 5

- Q-6 Write short note on dead lock characterization. 10

**OR**

- Q-6 Explain in detail the producer – consumer problem. 10