

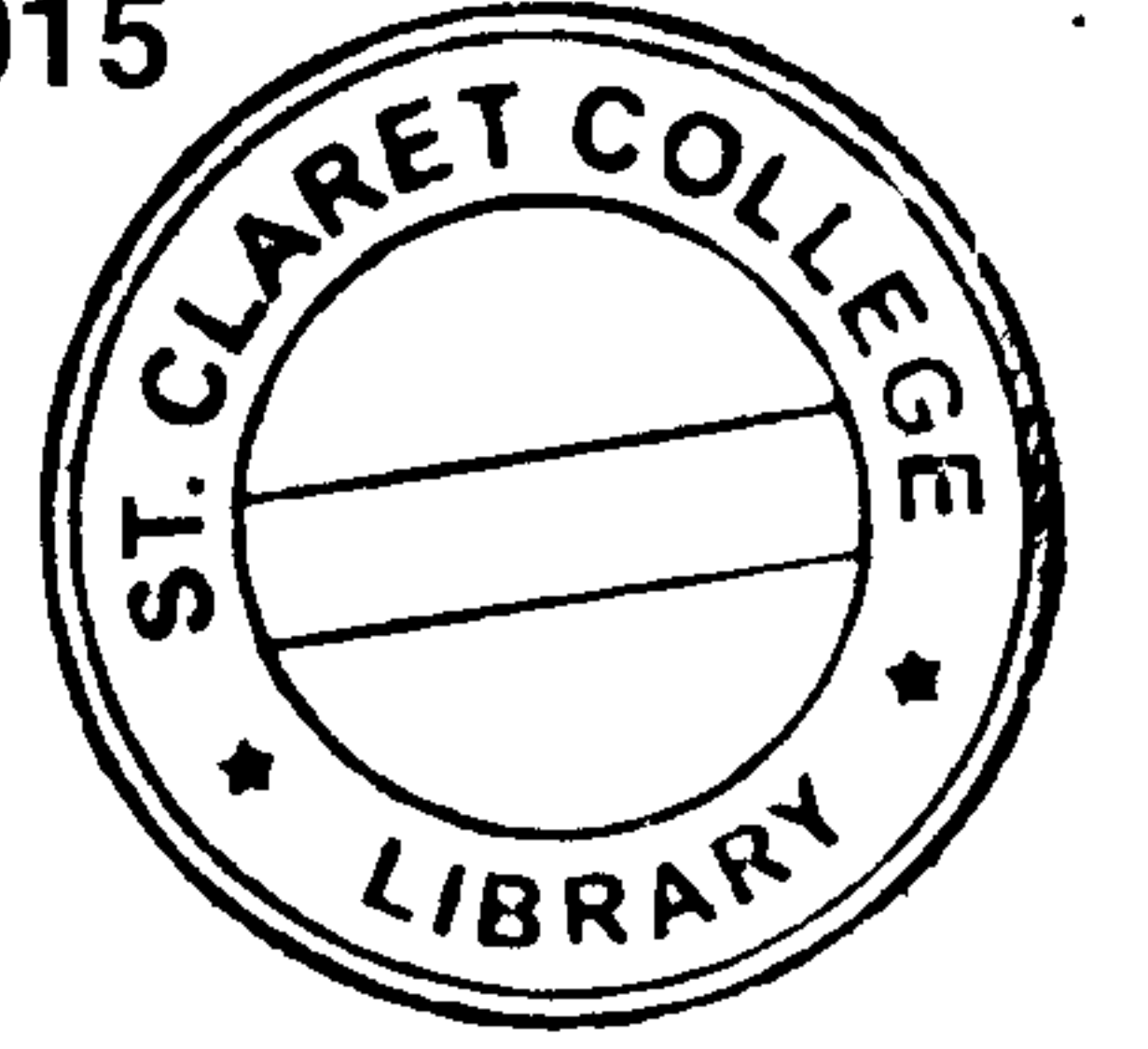


UN – 319

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III Semester B.C.A. Degree Examination, Nov./Dec. 2015
(Y2K8 Scheme) (Repeaters)

COMPUTER SCIENCE
BCA-304 : Operating Systems
100 – 2012-13 and Onwards
90 – Prior to 2012-13



Time : 3 Hours

Max. Marks : 90/100

Instructions : i) Answer **all** Sections.

ii) Section **D** is applicable **only** to students who have taken admission in **2011-12** and onwards.

SECTION – A

Answer **any 10** questions.

(10×2=20)

1. Define operating system.
2. What is spooling ?
3. Mention any two necessary conditions for a deadlock.
4. What is meant by mutual exclusion ?
5. Define page fault.
6. Define semaphore.
7. Define seek time.
8. What is a directory ?
9. Define rotational latency.
10. Mention any two attributes of a file.
11. Write any two functions of memory management system.
12. What is encryption ?

P.T.O.



SECTION – B

Answer **any 5** questions.

(5×5=25)

13. What are operating system services ? Explain any three of them.
14. What is a process ? Explain the different states of a process with the help of a process state transition diagram.
15. Explain any two methods of deadlock prevention.
16. What is segmentation ? What are its advantages and disadvantages ?
17. What is demand paging ? Explain.
18. Describe the structure of a hard disk.
19. Explain overlays with an example.
20. List any three goals of protection.

SECTION – C

Answer **any 3** questions.

(3×15=45)

21. a) Explain the various functions of operating system. 8
- b) Explain FCFS CPU scheduling algorithm. Draw the Gantt chart for the following processes. 7

Process	Burst Time
P ₁	09
P ₂	12
P ₃	20
P ₄	04

Calculate the average waiting time and average turn around time.

22. a) Explain the dining philosophers problem with a neat diagram. 8
- b) Explain critical section problem and process communication. 7
23. a) Explain Banker's algorithm. 8
- b) Explain contiguous memory allocation, with its advantages and disadvantages. 7



- 24. a) Explain LRU page replacement algorithm with an example. 8
- b) State Belady's Anomaly and its importance in demand paging. 7
- 25. a) Explain the different types of disk scheduling algorithms with an example. 9
- b) Discuss about the different types of viruses. 6

SECTION – D

Answer **any one** question.

(10×1=10)

- 26. Write short notes on :
 - i) File allocation methods. 5
 - ii) Swap space management. 5
 - 27. Write short notes on :
 - i) Semaphores. 5
 - ii) Peterson's algorithm for mutual exclusion problem. 5
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