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B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, NOVEMBER 2022

Fourth Semester

Core Course—OPERATING SYSTEM

(For B.Sc. Computer Science)

[2013—2016 Admissions]

Time : Three Hours   Maximum Marks : 80

Part A

*Answer **all** questions.*
Each question carries 1 *mark.*

1. Give examples of system programs.

2. What are the major functions of an Operating System (OS) ?

3. What is PCB in OS ?

4. What is a multi-core system ?

5. What is CPU scheduling ?

6. What is a context switch ?

7. What is a thread pool ?

8. What is a critical section ?

9. What is ADT ?

10. What is a bit vector ?

$(10 \times 1 = 10)$

Part B

*Answer any **eight** questions.*
Each question carries 2 *marks.*

11. What is the difference between user and kernel mode of OS ?

12. What is a system call ?

13. What are the advantages of multiprocessor systems ?

14. What is preemptive scheduling ?

Turn over

15. What is the difference between turnaround time and response time ?

16. What is multilevel queue scheduling ?

17. What is a Semaphore ?

18. What is a Monitor ?

19. What are the conditions for a deadlock ?

20. How is logical address mapped to physical address in memory ?

21. What is Swapping ?

22. What is Compaction ?

$(8 \times 2 = 16)$

Part C

Answer any **six** *questions.*
Each question carries 4 marks.

23. Briefly, describe the OS services with diagrams and illustrations.

24. Describe the various types of multiprocessing.

25. Briefly, explain the 2 methods for Inter Process Communication (IPC) with diagrams and illustrations.

26. Briefly, explain various models for multithreading with diagrams and illustrations.

27. Briefly, explain various process scheduling algorithms with diagrams and illustrations.

28. What is the readers-writers' problem in OS ?

29. Briefly, explain the segmentation in OS memory management.

30. Briefly, explain various algorithms for implementing a directory.

31. Briefly, explain device drivers in OS.

$(6 \times 4 = 24)$

Part D

Answer any **two** *questions.*
Each question carries 15 marks.

32. Explain in detail, paging memory management scheme.

33. Explain in detail, two page replacement algorithms in OS.

34. Explain in detail, file system organization in OS.

35. Explain in detail, various allocation methods in file systems of OS.

$(2 \times 15 = 30)$