

Five Year Integrated M.Sc. Examination, 2017

Semester - VIII

Course: COMP-4-8-1

(Advanced Computer Science)

Time: Four Hours

Full Marks: 80

Questions are of value as indicated in the margin.

Answer *any five* questions.

1. a) What is attenuation effect in optical transmission medium? What are the main causes of attenuation?
b) What is Optical Power? How the optical power is measured?
c) What are functional differences of Single Mode and Multi-mode Fibers?
d) Discuss how the total internal reflection takes place in cladding and core of optical fiber.
 $(2+2)+(1+3)+(2+2)+4=16$
 2. Discuss the working principles of Optical Fiber communication. What are the important characteristics of Optical Fiber Communication that make it so powerful and useful. $8+8=16$
 3. What are the basic differences between Binary Search and Linear Search? Which one is of less time complexity?
What do you mean by sorting of data? Discuss how you will sort a database with the help of Bubble Sort technique. $6+2+3+5=16$
 4. What is a Stack? What are the various operations on stack?
Compare and contrast the characteristics of Stack and Queue data structures.
What is a singly linked-list? What do you mean by doubly linked-list?
What are the advantages of doubly linked list over singly link list?
What is pointer? What is the importance of pointer in doubly link-list?
 $(1+4+3)+(2+2)+1+(2+1)=16$
 5. What is an Operating System? Discuss the main functions of an Operating System. What is GUI?
What are the important features of the Windows Operating System? What do you mean by multi-user, multi-tasking and time-shearing systems? $(3+4+1)+(4+4)=16$
 6. Write short notes on *any four*: $4 \times 4 = 16$
 - a) Shell and Kernel of Unix system
 - b) Optical Switch
 - c) Optical Splitter
 - d) Pointer variable
 - e) Comparative study between top-down and bottom-up approaches in program development.
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