

**2021**  
**COMPUTER SCIENCE (General)**

**Paper Code : III-A & B**

**[New Syllabus]**

**(Supplementary)**

**Important Instructions  
for Multiple Choice Question (MCQ)**

- Write Subject Name and Code, Registration number, Session and Roll number in the space provided on the Answer Script.

**Example :** Such as for Paper III-A (MCQ) and III-B (Descriptive).

Subject Code : 

III	A	&	B
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Subject Name : 

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- Candidates are required to attempt all questions (MCQ). Below each question, four alternatives are given [i.e. (A), (B), (C), (D)]. Only one of these alternatives is 'CORRECT' answer. The candidate has to write the Correct Alternative [i.e. (A)/(B)/(C)/(D)] against each Question No. in the Answer Script.

**Example** — If alternative A of 1 is correct, then write :

**1. — A**

- There is no negative marking for wrong answer.

### মাল্টিপল চয়েস প্রশ্নের (MCQ) জন্য জরুরী নির্দেশাবলী

- উত্তরপত্রে নির্দেশিত স্থানে বিষয়ের (Subject) নাম এবং কোড, রেজিস্ট্রেশন নম্বর, সেশন এবং রোল নম্বর লিখতে হবে।

উদাহরণ — যেমন Paper III-A (MCQ) এবং III-B (Descriptive)।

Subject Code : 

III	A	&	B
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Subject Name :

- পরীক্ষার্থীদের সবগুলি প্রশ্নের (MCQ) উত্তর দিতে হবে। প্রতিটি প্রশ্নে চারটি করে সম্ভাব্য উত্তর, যথাক্রমে (A), (B), (C) এবং (D) করে দেওয়া আছে। পরীক্ষার্থীকে তার উত্তরের স্বপক্ষে (A) / (B) / (C) / (D) সঠিক বিকল্পটিকে প্রশ্ন নম্বর উল্লেখসহ উত্তরপত্রে লিখতে হবে।

উদাহরণ — যদি 1 নম্বর প্রশ্নের সঠিক উত্তর A হয় তবে লিখতে হবে :

1. – A

- ভুল উত্তরের জন্য কোন নেগেটিভ মার্কিং নেই।

**Paper Code : III-A**

Full Marks : 30

Time : Thirty Minutes

Choose the correct answer.

Each question carries 1.5 marks.

1. Merge sort is an example of \_\_\_\_\_ strategy
  - (A) Divide and Conquer
  - (B) Dynamic programming
  - (C) Branch and bound
  - (D) None of the above
  
2. The wait-for graph is a deadlock detection algorithm that is applicable when \_\_\_\_\_
  - (A) all resources have a single instance
  - (B) all resources have multiple instances
  - (C) all resources have a single 7 multiple instances
  - (D) all of the mentioned
  
3. Which of the following cannot be checked in a switch-case statement ?
  - (A) Character
  - (B) Float
  - (C) Integer
  - (D) None of these
  
4. Queue is a \_\_\_\_\_ list
  - (A) LIFO
  - (B) FILO
  - (C) LILO
  - (D) FIFO

5. The complexity of linear search algorithm is —
- (A)  $O(n)$
  - (B)  $O(\log n)$
  - (C)  $O(n^2)$
  - (D)  $O(n \log n)$
6. Two main measures for the efficiency of an algorithm—
- (A) Processor & memory
  - (B) Complexity & capacity
  - (C) Time & space
  - (D) Data & space
7. The complexity of binary search algorithm is —
- (A)  $O(n)$
  - (B)  $O(\log n)$
  - (C)  $O(n^2)$
  - (D)  $O(n \log n)$
8. In \_\_\_\_\_ search start at the beginning of the list and check every element in the list.
- (A) Linear search
  - (B) Binary search
  - (C) Both (i) and (ii)
  - (D) None of these

9. Which of the following is non-linear data structure ?
- (A) Stack
  - (B) List
  - (C) Trees
  - (D) None of these
10. Which data structure allows deleting data elements at front and inserting at rear ?
- (A) Stack
  - (B) Queue
  - (C) Both (i) and (ii)
  - (D) None of these
11. The memory address of the first element of an array is called —
- (A) floor address
  - (B) first address
  - (C) base address
  - (D) none of these
12. Operating system means :
- (A) A set of programs which controls computer working
  - (B) A way a computer operator works
  - (C) A way a floppy disk drive operates
  - (D) All of the above

13. OS is a —
- (A) Application program
  - (B) System program
  - (C) AI program
  - (D) None of the above
14. The worst fit algorithm —
- (A) Is used only when nothing better is available
  - (B) Is to place program in largest available partition
  - (C) Should never be used
  - (D) Places a program in the smallest possible partition
15. MMU stands for —
- (A) Main memory
  - (B) Main memory management unit
  - (C) Memory management unit
  - (D) None of the above
16. The process is —
- (A) An instance of a program in execution
  - (B) A program only
  - (C) A processor state
  - (D) None of the above

17. PCB stands for —
- (A) Process control board
  - (B) Program control block
  - (C) Process control block
  - (D) None of the above
18. A safe state is —
- (A) Deadlock state
  - (B) Polling state
  - (C) None-deadlock state
  - (D) None of the above
19. LRU page replacement policy is —
- (A) Last replaced unit
  - (B) Last restored unit
  - (C) Least recently used
  - (D) None of the above
20. Which of the following is not logical operator ?
- (A) &
  - (B) &&
  - (C) ||
  - (D) None of the above
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**2021**  
**COMPUTER SCIENCE (General)**

**Paper Code : III-B**

**[New Syllabus]**

**(Supplementary)**

Full Marks : 70

Time : Two Hours Thirty Minutes

*The figures in the margin indicate full marks.*

Answer any *five* questions taking at least *one* from each group.

**Group - A**

1. (a) Explain insertion sort algorithm with an example. 6  
(b) How recursion works ? Give an example. 3+2=5  
(c) Explain dynamic memory allocation. 3
2. (a) Write iterative Binary search algorithm ? 5  
(b) Differentiate between Linear search and binary search ? 5  
(c) Explain Time and space complexity ? 4
3. (a) Write an algorithm to insert a node in singly linked list ? 6  
(b) Explain Bubble sort algorithm with the help of an example ? 6  
(c) Write the complexity of bubble sort ? 2

**Group - B**

4. (a) What is process? Discuss process life cycle ? 2+3=5  
(b) What is deadlock ? Explain deadlock handling strategies ? 3+4=7  
(c) What are the types of scheduling ? 2



5. (a) What is paging ? Write two advantages of paging ? 2+2=4
- (b) Explain FIFO page replacement technique with an example ? 5
- (c) What is demand paging ? 5

### Group - C

6. (a) Write a C program to print the following pattern

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*
* *
* * *
* * * *
* * * * *
```

6

- (b) Write a c program to swap two numbers without using third variable. 4
- (c) Differentiate between call by value and call by reference. 4
7. (a) Write short note on the following (any *two*) : 5×2=10
- (i) Switch statement
  - (ii) Continue
  - (iii) Keywords v/s Identifiers
  - (iv) While loop
- (b) Explain the C operators (any *two*) 2+2=4
- (i) Conditional operators
  - (ii) Relational operators
  - (iii) Arithmetic operators
  - (iv) Logical operators