2020

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 |

  Subject Name : | |

- 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 |

  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

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

_____

2020

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

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

   ——————