

2020

## COMPUTER SCIENCE (General)

Paper Code : III - A & B

[New Syllabus]

### 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 :

- 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.

Answer *all* questions.

1. Which of the following acts as the primary controlling mechanism for the computer's hardware?
  - (A) RAM
  - (B) CPU
  - (C) Operating System
  - (D) CD ROM
  
2. A situation where a process or a set of processes is blocked, waiting for some resource that is held by some other waiting processes —
  - (A) Mutual exclusion
  - (B) Semaphores
  - (C) Deadlock
  - (D) None of the above
  
3. Which of the following is not logical operator?
  - (A) &
  - (B) &&
  - (C) !
  - (D) ||

4. Which of the following cannot be checked in a switch-case statement?
- (A) Character
  - (B) Float
  - (C) Integer
  - (D) None of these
5. Queue is a \_\_\_\_\_ list —
- (A) LIFO
  - (B) FILO
  - (C) LILO
  - (D) FIFO
6. The complexity of linear search algorithm is —
- (A)  $O(n)$
  - (B)  $O(\log n)$
  - (C)  $O(n^2)$
  - (D)  $O(n \log n)$
7. Which function you will use for coping string from source to destination?
- (A) Strcpy()
  - (B) Strev()
  - (C) Strlwr()
  - (D) None of these
8. The 'C' language has been developed by —
- (A) Patrick Naughton
  - (B) Dennis Ritche
  - (C) Ken Thompson
  - (D) Martin Richards

9. In \_\_\_\_\_ search start at the beginning of the list and check every element in the list.
- (A) Linear search
  - (B) Binary search
  - (C) Both (A) and (B)
  - (D) None of these
10. Which of the following is non-linear data structure —
- (A) Stack
  - (B) List
  - (C) Trees
  - (D) None of these
11. Which data structure allows deleting data elements at front and inserting at rear?
- (A) Stack
  - (B) Queue
  - (C) Both (A) and (B)
  - (D) None of these
12. 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

13. 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
14. An OS is an —
- (A) Application program
  - (B) System program
  - (C) AI program
  - (D) None of the above
15. 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
16. MMU stands for —
- (A) Main Memory
  - (B) Main Memory Management Unit
  - (C) Memory Management Unit
  - (D) None of the above
17. The process is —
- (A) An instance of a program in execution
  - (B) A program only
  - (C) A processor state
  - (D) None of the above

18. PCB stands for —

- (A) Process Control Board
- (B) Program Control Block
- (C) Process Control Block
- (D) None of the above

19. What will be the output of the following program?

```
int main(){ int i=65; printf(“\n %d %c”,i,i); return 0; }
```

- (A) Will show an error
- (B) 65 A
- (C) A 65
- (D) None of the above

20. LRU page replacement policy is —

- (A) Last Replaced Unit
  - (B) Last Restored Unit
  - (C) Least Recently Used
  - (D) None of the above
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P - II (1+1+1) G / 20 (N)

2020

## COMPUTER SCIENCE (General)

Paper Code : III - B

[New Syllabus]

Full Marks : 70

Time : Two Hours Thirty Minutes

*The figures in the margin indicate full marks.*

Five questions to be answered, taking at least *one* and at-most  
*two* questions from each groups.

14×5=70

### Group - A

1. (a) Write an algorithm to sort a set of numbers using Insertion Sort technique.  
Give an example of it.  
(b) Explain recursion with an example.  
(c) Explain dynamic memory allocation. (4+3)+4+3=14
2. (a) Write an algorithm that implements Binary Search iteratively?  
(b) Convert the following Infix expression to its corresponding postfix  
expression :  
(A/B)\*C-D+E\*F  
(c) Define Time and Space Complexity. 5+5+4=14
3. (a) Differentiate between Stack and Queue.  
(b) Write the advantages of Linked List over an Array.  
(c) Write a function in C programming that implements Bubble sort? Explain  
with example. Write the complexity of it. 4+2+(4+3+1)=14

### Group - B

4. (a) Briefly discuss about Process Life Cycle?  
(b) Define preemptive and non preemptive scheduling?



(c) What do you mean by deadlock? What are the conditions of deadlock?  
Describe briefly. 3+4+(1+6)=14

5. (a) What do you mean by paging? Write two advantages of paging?

(b) What is page fault?

(c) Briefly describe Demand Paging. (4+2)+2+6=14

### Group - C

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

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

(b) What should be the output of this following program that is given below —

```
#include <stdio.h>
#define LENGTH 10
#define WIDTH 5
#define NEWLINE '\n'
int main()
{
int area;
area = LENGTH * WIDTH;
printf("value of area : %d", area);
printf("%c", NEWLINE);
return 0;
}
```

- (c) Write the difference between keyword and identifier?
  - (d) Briefly discuss about data types in C. 6+3+3+2=14
7. (a) What is an array? How elements of an array are stored?
- (b) Write the syntax of While loop and for loop with example?
- (c) Explain the C operators briefly (any *two*) :
- (i) Bitwise operators
  - (ii) Arithmetic operators
  - (iii) Logical operators (2+2)+4+(3+3)=14
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