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Sub Code: RCA101

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MCA

(SEM I) THEORY EXAMINATION 2017-18

COMPUTER CONCEPTS & PRINCIPLES OF PROGRAMMING

Time: 3 Hours

Total Marks: 70

Notes: Attempt all Sections. Assume any missing data.

SECTION A

1. Attempt all questions in brief.

2 x 7 = 14

- a) Differentiate between computer hardware and software.
- b) What is flash memory? What is the application of flash memory?
- c) What do you understand by operating system?
- d) Differentiate between variable and constant.
- e) How computers can be classified based on number of users?
- f) What do you understand by data object? Explain.
- g) Explain green computing.

SECTION B

2. Attempt any three of the following:

7 x 3 = 21

- a. Write a note on computer memory hierarchy with suitable example and their applications.
- b. What do you mean by cache memory? Discuss various levels of cache.
- c. What is an algorithm? Give the characteristics of an algorithm. Also write an algorithm to display all the even numbers between 1 and 99.
- d. Write a note on Encapsulation, Abstraction with the help of an example.
- e. Discuss Type Checking and Type Conversion in detail with example.

SECTION C

3. Attempt any one part of the following:

7 x 1 = 7

- (a) Explain in detail different generations of computer languages.
- (b) Convert the following:
 - I) $(237.50)_{10} = (\dots)_2$
 - II) $(AB12)_{16} = (\dots)_{10}$
 - III) $(1001010.11)_2 = (\dots)_8$
 - IV) $(246)_8 = (\dots)_{16}$

4. Attempt any one part of the following:

7 x 1 = 7

- (a) Discuss various syntactic elements of a programming language.
- (b) Write short notes on Python Programming. Enlist the applications where it is preferable to use the Python programming language.

5. Attempt any one part of the following:

7 x 1 = 7

- (a) Write a detailed note on structured data type.
- (b) What do you understand by static and dynamic scope of variables? Discuss.

6. Attempt any one part of the following:

7 x 1 = 7

- (a) Differentiate between: (i) LINUX and UNIX, (ii) Android and Windows.
- (b) What is cloud computing model? Explain. Also give its benefits.

7. Attempt any one part of the following:

7 x 1 = 7

- (a) What are the various attributes of good programming language? Discuss.
- (b) What is flow chart? What the major symbols used to draw flow chart? Draw a flow chart to find the maximum number out of any given three positive integer numbers.