MCS-034

MASTER OF COMPUTER APPLICATIONS (MCA) (Revised)

Term-End Examination

June, 2020

MCS-034 : SOFTWARE ENGINEERING

Time : 3 Hours   *Maximum Marks : 100*

Weightage : 75%

Note : *Question No. 1 is compulsory. Attempt any* ***three*** *questions from the rest.*

1. (a) XYZ university has a separate division to procure computers, printers, scanners, software and other computer accessories for its schools, divisions, regional centres, units, cells etc. The division has a Director, Deputy Directors, Assistant Directors and other staff working for this procurement of hardware and software. The requests come

from the schools, divisions, regional centres etc. The procurement can be done only through GeM portal. Apart from procurement they handle the Annual Maintenance Contracts (AMC), Complaints, Renewals etc. To accomplish the above mentioned tasks, perform the following :

(i)   Develop SRS for this system.   5

(ii) Draw context-level DFD, 1st level DFD's and 2nd level DFD's.   5

(iii) Identify all the modules and list their functionalities.   5

(iv) Design an Entity Relationship (E-R) diagram.   5

(b) Explain the process of developing wireless application using J2ME.   10

(c) Define cleanroom software engineering. What is its significance ? Discuss the underlying principles of clean roombased software development.   10

2. (a) Before the actual system commences, the system architecture is modelled. With reference to Q.1 (a), derive the environmental model and behavioural model for the proposed system. **10**

(b) Define debugging. Write the general characteristics of bugs and discuss the life cycle of debugging task mentoring various steps involved. **10**

3. (a) Define software project estimation. List and explain the steps involved in project estimation. **10**

(b) Define change management. Explain the process of change management. **10**

4. (a) List the characteristics of a web application. With reference to any of the example of web application, explain the tasks involved in the testing and deployment phases. **10**

(b) Discuss the evolution of formal methods and list some areas of its application.   10

5. Write short notes on any *four* of the following :

5 each

(a) Software quality

(b) Use of mathematics in software development

(c) Version control

(d) Scheduling methods

(e) Human Computer Interface (HCI)