Total No. of printed pages = 4

63/2 (SEM-3) MCA 3·2

2022

(Held in 2023)

MCA

(Theory Paper)

Paper Code : MCA-3.2

(Software Engineering)

Full Marks – 80

Pass Mark – 32

Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions : 1×6=6

   (a) Define software engineering.

   (b) What is the difference between Program and Software ?

   (c) What is a risk ?

   (d) Define Line of Code.

   (e) What is data dictionary ?

   (f) Write the IEEE definition for Software Life Cycle ?

[Turn over

2. Answer the following questions : 2×7=14

(a) Define module coupling.

(b) What is meant by Unit Testing and System Testing ?

(c) What is software portability ?

(d) Explain briefly about Software Crisis.

(e) Explain bottom up design.

(f) What is software maintenance ?

(g) Differentiate between Validation and Verification.

3. Answer any *five* of the following questions : 5×5=25

(a) Discuss Prototype model. What is the effect of designing a prototype on the overall cost of the software project ? 4+1=5

(b) Discuss the two Basic models used for cost estimation for a new software project. 5

(c) Explain the activities involved in Risk management. 5

(d) A University's Administrative office maintains data about the following entities : Courses, including Course_ID, Ttitle, Credits, Syllabus; Students, including Student_ID, Name, Program; Instructors, including ID-No, Name, Department. Construct an E-R diagram for the Administrative office. Document all assumptions that can be made about the mapping constraints. 5

(e) Describe any one of the software size estimation techniques. 5

(f) Draw Data flow diagram for a Library management system. 5

(g) Compute the Function Points value for a project with 30 low external inputs, 42 high external outputs, 8 low internal logical files, 7 high external interface files, 6 average external enquiries, assume all complexity adjustment factors as moderate. Given that : 5

Functional units	Weighting factors		
	Low	Average	High
EI	3	4	6
EO	4	5	7
EQ	3	4	6
ILF	7	10	15
EIF	5	7	10

ΣF_i	
0	no influence
1	incidental
2	moderate
3	average
4	significant
5	essential

4. Answer any *three* from the following questions : 10×3=30

(a) Describe Function Count and the procedure to calculate Function Point.

(b) Discuss the three models of COCOMO.

(c) Describe Spiral model and its advantages.

(d) Explain the phases involved in waterfall model, in detail.

(e) Discuss the basic concepts of Object Oriented Design.