The value of CAF for average rating is 3 and the values of weighting factors are :

EI	EO	EQ	ILF	EIF
4	5	4	10	7

(10)

7. Differentiate between the following :

(i) Software Re-engineering and Reverse Engineering.

(ii) Coupling and Cohesion in software design.

(iii) Verification and Validation in software testing. (15)

Roll No. ..... Total Pages : 4

602203

August/September 2022

MCA II SEMESTER

SOFTWARE ENGINEERING (MCA-20-106)

Time : 3 Hours] [Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART -A

1. (a) What are the disadvantages of waterfall model? (1.5)

(b) How is software different from a program? (1.5)

(c) What are the differences between functional and non-functional requirements? (1.5)

(d) What is meant by software prototyping? (1.5)

(e) What is the benefit of modular design? (1.5)

(f) How do we compute the cyclomatic complexity? (1.5)

(g) What are the advantages of incremental model? (1.5)

(h) What is a boundary value analysis? (1.5)

(i) Distinguish between alpha and beta testing. (1.5)

(j) Mention any *two* non-functional requirements on software to be developed. (1.5)

PART-B

2. (a) Discuss in detail the FAST method of Requirement elicitation with an example. (5)

(b) What do you understand by the term Software Development Life Cycle? Sketch a neat diagram of spiral model of software life cycle and hence explain it. (10)

3. (a) Discuss how object oriented design is different from function oriented design? Design a sequence diagram for the module "withdraw money" for banking system. (10)

(b) Consider a program to determine roots of quadratic equation with inputs in the interval [0, 100]. Design input and output classes using equivalence class testing technique. (5)

4. Differentiate among basic, intermediate and detailed COCOMO model. Suppose that a project was estimated to be 400KLOC. Calculate the effort and development time for each of the three modes of basic COCOMO model. The co-efficients are given below :

Project	a_b	b_b	c_b	d_b
Organic	2.4	1.05	2.5	0.38
Semidetatched	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

(15)

5. (a) A sofware is to be developed for Computer Engg. Deptt. of a college for "Result Management System". Design a DFD specifying this system. (10)

(b) What is software quality? Explain capability maturity model. (5)

6. (a) Is it possible to estimate software size before coding? Justify your answer with an example. (5)

(b) Compute the FP value for a project with the following information domain characteristics assuming all complexity adjustment and weighting factors as average :

Number of user inputs = 32

Number of user outputs = 60

Number of user inquires = 24

Number of internal files = 8

Number of external interfaces = 2