(c) Discuss the various black box and white box testing techniques. Use suitable examples for your explanation. (CO4)

5. (a) Discuss Boehm's and Taute maintenance model with the help of a diagram. (CO5)

(b) Explain Agile Software Development Process with the help of diagram. Also discuss Scrum. (CO5)

(c) What is software maintenance? State the activities of re-engineering process. (CO5)

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TMC–206

M. C. A. (SECOND SEMESTER) END SEMESTER EXAMINATION, June, 2023

SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

Time : Three Hours

Maximum Marks : 100

Note : (i) All questions are compulsory.

(ii) Answer any ***two*** sub-questions among (a), (b) and (c) in each main question.

(iii) Total marks in each main question are **twenty**.

(iv) Each sub-question carries 10 marks.

1. (a) Which software process model is best suited for risk management? Explain the model. Describe how the model is used to layout the objectives, risks, and plans for quality improvement. (CO1)

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(b) Explain the importance of Software Reliability. Also discuss two software reliability models. (CO1)

(c) Explain McCall and Boehm software quality model in detail. (CO1)

2. (a) List and explain various COCOMO cost estimation models. A project size of 200 KLOC is to be developed. Software development team has average experience on similar type of projects. The project schedule is not very tight. Calculate the effort, development time, average staff size and productivity of the project. (CO2)

(b) Describe function point and LOC. An application has the following : (CO2)

10 low external inputs, 12 high external outputs, 20 low internal logical files, 15 high external interface files, 12 average external enquiries, and a value of the complexity adjustment factor of 1.10. What are the adjusted and unadjusted function point counts ?

(c) Justify the need of Project scheduling. Discuss the various methods for project scheduling with suitable example. (CO2)

3. (a) What is the purpose of data flow diagrams ? What are the notations used for the same ? Explain by constructing a DFD for Patient information system up to level 2. (CO3)

(b) Assume that you are developing an online railway reservation system. Prepare the Software Requirement Specification (SRS) document for the system. (CO3)

(c) What is Software Design ? List the principles of software design. Describe the difference between conceptual design and technical design. Also explain coupling and cohesion. (CO3)

4. (a) What is testing? Explain the levels of testing. Also compare and contrast Alpha and Beta testing with an example. (CO4)

(b) Discuss the differences between verification and validation. (CO4)