Course: B. Tech. Computer Science and Engineering (AI/ML)
Subject: MOOC I (Software Engineering)
Subject Code: ETCS-210
Semester: IV

Time: 03 Hours **Max Marks: 70**

Instructions to the Students:

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of short answer type. All questions are compulsory. Each question carries 02 marks.
3. Section B comprises 8 long answer type questions out of which students must attempt any 5. Each question carries 10 marks.
4. Do not write anything on the question paper.

Q.No.	SECTION –A (SHORT ANSWER TYPE QUESTIONS)	Marks
1. a.	Discuss the changing nature of software with example.	(2)
b.	Differentiate between functional and non-functional requirements.	(2)
c.	Define conceptual model in software engineering. How conceptual models are created in the process of software development?	(2)
d.	How white box testing is different from black box testing?	(2)
e.	Give reasons to carry out risk identification and risk assessment.	(2)
f.	List out ISO 9000 quality standards for software development.	(2)
g.	Can we state that evolutionary model is same as incremental model. Justify your answer.	(2)
h.	What is the need of carrying out requirement analysis before designing any software?	(2)
i.	Define (i) class diagrams and (ii) sequence diagrams	(2)
j.	What are some software metrics used to analyse the quality of software code?	(2)

SECTION –B (LONG ANSWER TYPE QUESTIONS)

2.	Outline the waterfall model for software engineering.	(10)
3.	Explain requirement engineering process.	(10)

4. Assume that you are developing an online railway reservation system. Prepare the software Requirement specification (SRS) document for the system. (10)

5. What is software architecture? Outline architectural designs with suitable example. (10)

6. List and explain the phases in risk management. (10)

7. Create a UML activity diagram for "purchase_ticket" for a ticket vending machine. (10)
   Activity is started by Commuter actor who needs to buy a ticket.
   Ticket vending machine will request trip information from Commuter.
   Based on the info machine will calculate payment due and request payment options. After payment is complete, ticket is dispensed to the Commuter.

8. Consider the following two projects. Choose the most appropriate SDLC for these projects. Give explanation to your answer. (10)
   Project 1. You are migrating a legacy application in mainframes of Oracle.
   The project goes through well defined phases of contract signing, taking each Program of the current system with well defined acceptance test data, converting it to oracle and providing the output matches the expected output.
   It is not possible to seek the intermediate feedback.
   Project 2. You are developing a proof-of-concept to show your prospect on how your product is suited for developing wireless applications.
   You do not have access to expensive CASE tools.

9. Explain the process of unit testing and integration testing. (10)

===END OF PAPER===