B.TECH. (CSE)

FIFTH SEMESTER

Course Name: Software Engineering (BCST-504 A)

Course Outcomes (CO):

1. Explain various software characteristics and analyze different software Development Models.

2. Demonstrate the contents of a SRS and apply basic software quality assurance practices to ensure that design, development meet or exceed applicable standards.

3. Compare and contrast various methods for software design

4. Formulate testing strategy for software systems, employ techniques such as unit testing, Test driven development and functional testing.

5. Manage software development process independently as well as in teams and make use of Various software management tools for development, maintenance, and analysis.

Model Question Paper

Total Duration (H: M): 3:00

Course: Software Engineering

Maximum Marks: 100

Note: Attempt all five questions, each carry equal marks.

Q.No	Questions	Marks	CO	BL
1(a)	What is Software? Describe the four important attributes that all software products should have.	5	CO1	1
1(b)	Explain classical waterfall model and also mention at least two reasons as to why classical waterfall model can be considered impractical and cannot be used in real projects.	5	CO1	2
1(c)	Identify the problem one would face, if he tries to develop a large software product without using software engineering principles.	5	CO1	4
1(d)	Identify the two important techniques that software engineering	5	CO1	5

	uses to tackle the problem of exponential growth of problem complexity with its size.			
1(e)	Explain the problems that might be faced by an organization if it does not follow any software life cycle model.	5	CO1	4
2(a)	Define SRS? What are the different components of SRS document?	5	CO2	1
2(b)	What are the Requirement Engineering Process functions?	5	CO2	2
2(c)	Without developing an SRS document an organization might face severe problems. Identify those problems.	5	CO2	5
2(d)	Discuss main requirements of ISO 9001and compares it with SEI capability maturity model.	5	CO2	1
2(e)	What do you mean by software reliability and software availability? Also discuss how they are measured?	5	CO2	1
3(a)	What are the main difference between coupling and cohesion? Also define their types. What problems are likely to arise if two modules have high coupling?	10	CO3	4

3(b)	What is cyclomatic complexity? How it is calculated? Find the cyclomatic complexity of following code.
	start
	if (X) **then**
	if (Y) **then**
	perform A
	perform B
	else
	perform C
	perform D
	endif
	endif
	end
		10	CO3	6

3(c)	Explain object-oriented. What is the difference between an operation and a method in the context of object-oriented design technique?	10	CO3	1
4(a)	Define Testing. What is the difference between black-box and structural testing? And suggest how they can be used together in the defect testing process.	10	CO4	5
4(b)	What do you understand by the term integration testing? What are the different types of integration testing methods that can be used to carry out integration testing of a large software product?	10	CO4	1
4(c)	What do you mean by control flow graph (CFG)? Discuss how does CFG of a problem help in understanding of path coverage based testing strategy.	10	CO4	5
5(a)	What are CASE tools? What are the main advantages of the CASE tools? Discuss.	10	CO5	1
5(b)	Assume that the size of an organic type software product has been	10	CO5	3

	estimated to be 32,000 lines of source code. Assume that the average salary of software engineers be Rs. 15,000/- per month. Determine the effort required to develop the software product and the nominal development time.			
5(c)	Differentiate among basic COCOMO model, intermediate COCOMO model and complete COCOMO model.	10	CO5	1