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RV COLLEGE OF ENGINEERING®

(An Autonomous Institution affiliated to VTU)

V Semester B. E. Examinations March /April 2024

Common to ISE / CSE

SOFTWARE ENGINEERING

Time: 03 Hours ***Maximum Marks: 100***

Instructions to candidates:

1. Answer all questions from Part A. Part A questions should be answered in first three pages of the answer book only.
2. Answer FIVE full questions from Part B. In Part B question number 2, 7 and 8 are compulsory. Answer any one full question from 3 and 4 & one full question from 5 and 6.

PART-A

			M	BT	CO
1	1.1	"Acceptability" is an essential attribute for good software. Justify the statement.	02	2	1
	1.2	Justify the statement "Non-functional requirements are often more critical than individual functional requirements".	02	2	3
	1.3	Define "continuous integration" and "pair programming" in the context of extreme programming.	02	1	4
	1.4	Differentiate between Software Engineering and System Engineering.	02	2	1
	1.5	Give two important distinctions between release testing and system testing.	02	2	1
	1.6	Illustrate the spiral model for software development and evolution.	02	1	1
	1.7	Differentiate between Verification and Validation.	02	2	1
	1.8	Mention the essential characteristics of a component as used in CBSE.	02	1	1
	1.9	How are project schedules represented commonly?	02	2	2
	1.10	List any four factors that affect software pricing.	02	1	4

PART-B

2	a	With the help of an illustration, outline the general process of reuse based software development.	08	2	1
	b	Extreme programming expresses user requirements as stories, with each story written on a card. Discuss the advantages and disadvantages of this approach to requirements description.	08	3	4
3	a	Draw a sequence diagram to demonstrate retrieving the patient details from a hospital database through appropriate authentication.	08	3	4
	b	"During the requirements validation process, different types of checks should be carried out on the requirements in the requirements document". Outline any 4 such checks that you would perform as a team member. Also, elicit the importance of each of the checks.	08	3	4

		OR			
4	a	You are a Software Engineering Manager and your team proposes that model-driven engineering should be used to develop a new system. What factors should you take into account when deciding whether or not to introduce this new approach to software development? Justify each.	08	3	2
	b	Using your knowledge of how an ATM is used, develop a set of 4 use cases that could serve as a basis for understanding the requirements for an ATM system. Each use case should have description of Name, Actors, Inputs, Outputs, Normal operation and Exception case.	08	3	4
5	a	"It is usually more expensive to add functionality after a system is in operation than it is to implement the same functionality during development". Justify the statement by giving appropriate reasons for the same.	08	3	2
	b	A small company has developed a specialized product that it configures specially for each customer. New customers usually have specific requirements to be incorporated into their system and they pay for these to be developed. The company has an opportunity to bid for a new contract which would more than double its customer base. The new customer also wishes to have some involvement in the configuration of the system. Explain why in these circumstances, it might be a good idea for the company owning the software to make it open source.	08	3	4
		OR			
6	a	As a software project manager in a company that specializes in the development of software for the offshore oil industry, you have been given the task of discovering the factors that affect the maintainability of the systems developed by your company. Suggest how you might set up a program to analyze the maintenance process and determine appropriate maintainability metrics for the company.	08	3	4
	b	Typically, a commercial software system has to go through three stages of testing. What are the stages? Explain.	08	3	1
7	a	With the help of illustration, outline the fundamental activities of software development.	08	2	4
	b	Discuss Principal Dependability properties and define each of them.	08	2	2
8	a	Explain how COCOMO-II was derived. Identify the sub-models of COCOMO-II model and outline what are they used for.	08	2	4
	b	With the help of a neat diagram, describe the process of project scheduling in a plan-driven project.	08	2	2