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PES UNIVERSITY

PES University, Bengaluru
(Established under Karnataka Act No. 16 of 2013)

UE19CS302

DECEMBER 2021: END SEMESTER ASSESSMENT (ESA) B TECH 5 SEMESTER

UE19CS302 – SOFTWARE ENGINEERING

Time: 3 Hrs	Answer All Questions	Max Marks: 100

Note: 1. Length of answers should be proportional to the marks allocated
2. Make all assumptions as necessary

1	a)	Discuss the agile SCRUM methodology in terms of 1. Any 3 Roles within SCRUM methodology with their responsibility - 3 Marks 2. Any 3 SCRUM Events and their relevance - 3 Marks 3. What are Sprints and its relevance to make SCRUM approach to be Agile – 2 Marks	8
	b)	Contrast Waterfall Model, CBSE and Product Line in terms of Reusability and Supportability	6
	c)	Assume you are developing an application which will support online buying and selling of movie tickets. Specify any 3 Functional requirements and 3 Non-functional requirements for the same, keeping the properties expected of a requirement.	6
2	a)	Consider you are building a plan for a project, where you have work broken down the project requirements into a set of executable tasks and have estimated the amount of effort needed to execute that. Discuss any 6 points which needs to be considered while building a Schedule for project.	6
	b)	Describe (2-3 sentences) any 4 principles/techniques which influence a good design	8
	c)	Consider your company has a software product which has software components deployed across different servers, and when a problem occurs, support engineers need to trouble shoot using the information logged by the software components. Some of the characteristics of the environment are that Log sizes are large, and these logs are generated at small intervals of time, and the interest in the logs is for particular events over specific time period in the logs. You are expected to provide an Architectural solution to support quick and effective trouble shooting. There are potentially different architectural approaches/solutions to solve the above problem, where each of the solutions will have different trade-offs in terms of non-functional requirements. Illustrate this by providing 3 solutions for the above scenario highlighting what non-functionalities and the trade-off therein.	6

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3	a)	Discuss what are configuration Items, Baselines and SCM Directories with an example each	6
	b)	Discuss each of these in the context of Software Implementation 1. A program is for the programmer who reads it, not for the computer that runs it. – 2marks 2. Programs have "personalities" - 2marks 3. Don't patch bad code – re-write it - 1 mark	5
	c)	In the context of software Implementation, discuss the journey of a Bug. What is its relationship to the cost of maintenance? What would you infer from the same?	3
	d)	Discuss each of these terms in the context of Agile Construction 1. Sprint Burndown 2. Team Velocity Metric 3. Throughput	6
4	a)	Contrast the following with what is it and one example 1. Static testing and Dynamic testing - 3 marks 2. Black-box testing and White-box testing - 3 marks 3. Manual testing and Automated testing - 3 marks	9
	b)	Discuss any 5 Software metric characteristics with one line description of the same.	5
	c)	Discuss any 2 reasons why Software maintenance is needed? Discuss also 2 activities which are expected and 2 actions which will support Software Maintenance	6
5	a)	Name any 5 reasons on the relevance of global software development	5
	b)	Briefly describe 5 widely accepted ethical characteristics expected of a software engineer	5
	c)	Discuss the four common themes that any team looking to implement DevOps needs to focus its time and resources on. How does this complement the DevOps pipeline?	5
	d)	Discuss what are the following with one line descriptions 1. Continuous Integration 2. Continuous Build 3. Continuous Delivery 4. Continuous Testing 5. Continuous Deployment	5