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PES University, Bengaluru

(Established under Karnataka Act No. 16 of 2013)

UE17CS402

DECEMBER 2020: END SEMESTER ASSESSMENT (ESA) B TECH 7 SEMESTER

UE17CS402 – Software Engineering

Time: 3 Hrs	1. Answer All Questions 2. Assumptions made should be stated in the beginning of the answer 3. Answer lengths to be proportional to the marks assigned	Max Marks: 100

1	a)	Discuss the V Model of Software Development Lifecycle with the different phases, focus of each of these phases and the deliverables or artifacts which you would see at the end of the phase. Discuss how is this similar to a waterfall model and how is it different from a waterfall model.	6+1+1
	b)	Discuss the SCRUM Agile approach of software development in terms of its activities and one advantage and one disadvantage of this Agile approach.	5+2
	c)	In Agile approach, State whether the following statements are **True** or **False** 1. Individuals and Interactions are considered more important than processes and tools 2. Comprehensive documentation is more important than working software 3. Responding to changes in the requirements are more important than following a plan 4. Products developed are available for customers at the end of the development lifecycle 5. Contract negotiations with customers are not as important as customer collaboration	5
2	a)	State True or False for the following questions 1. Cost of repair of a problem found in design is higher to fix than a problem found during implementation 2. Feasibility study is to validate that the product planned for development is good for development 3. Downstream dependencies are those dependencies which you are dependent on 4. Sizability is a non-function requirement of a product 5. Delphi estimation technique can be effectively applied to estimate an activity, when none of the team members have any experience in the area of activity.	5
	b)	Discuss briefly the following 1. Any two properties which you would expect from a software requirement with an example to illustrate the same 2. Discuss an approach through which you could choose a lifecycle for development of a product	2 3
	c)	Enumerate and briefly discuss in 1-2 sentences, any 5 different considerations which influence the software design characteristics like simplicity and maintenance.	5

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	d)	Choose the correct answer in each of the following questions 1. Divide and Conquer is A. Architecture Strategy B. Implementation Strategy C. Testing Strategy D. None of the above 2. Which of the following design methodologies first specifies the individual base elements of the system in great detail? A. Top down design B. Bottom up design C. Component-based design D. Pattern-oriented design 3. A design that can be can be modified easily to work with other software components during integration is highly A. Portable B. Profitable C. Interoperable D. Usable 4. In terms of Cohesion and Coupling A. Good to have High Cohesion and High Coupling B. Good to have Low Cohesion and High Coupling C. Good to have Low Cohesion and Low Coupling D. Good to have High Cohesion and Low Coupling 5. Architecture manifests early set of design decisions in terms of A. not being predominantly focused towards functional requirement B. not setting constraints on implementation C. not Inhibiting or enabling quality attributes D. not driving an organizational structure	1x5
3	a)	Discuss any 6 coding guidelines which you are familiar with	6
	b)	A product PQR has been released to the market characterized by the number 5.7.6. The code for this is in a directory $HOME/Project/released. There has been work continuing on this product and the .c and .h files are in a directory $HOME/Project/Module. In this scenario 1. Identify the configurable items in the description above 2. Identify the Programmers directory 3. Identify the baselined directory 4. Identify the version number in the characterized string	4
	c)	What is Requirement traceability Matrix? What is the need for the Same? Illustrate an RTM.	1+2+3
	d)	Discuss any four approaches which can be followed for programming for testability	4

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4	a)	Discuss briefly the steps involved in a Software Maintenance Lifecycle	6
	b)	Discuss briefly each of the following 1. Patching – What, Why and types 2. Static Testing – What is it with two examples 3. Regression Testing	 3 3 2
	c)	Discuss briefly 1. Re-engineering 2. Reverse-engineering 3. Re-structuring	6 (2x3)
5	a)	Define Metric and Measures with respect to Software Quality. Name one example measure for the following quality attributes of a product. Correctness, Maintainability, Integrity & Usability	2+4
	b)	Discuss briefly 1. Process Capability, Process Performance and Process maturity 2. Professional Ethics with 2 examples of professional ethical practices 3. Any 3 reasons which makes global software development to be relevant	 3 3 3
	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?	4+1