Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem (Odd) Examination Dec-2019

CA5CO11 Software Engineering

Programme: MCA Branch/Specialisation: Computer Application

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. The goal of software practitioners is to produce **1**
(a) Cost-Effective Products (b) Faster Products
(c) Better Products (d) All of these

ii. Which one of the following models has risk-driven approach? **1**
(a) Agile Process Model (b) Prototyping Model
(c) Spiral Model (d) Waterfall Model

iii. Which of the following models has an extensive reuse of components? **1**
(a) Application Component Model
(b) Early Design Model
(c) Post-Architecture Model
(d) None of these

iv. An unfavourable situation that may lead to an undesirable outcome is known as **1**
(a) Failure (b) Unreliability
(c) Risk (d) None of these

v. E-R Modeling is a **1**
(a) Data-oriented analysis tool
(b) Object- oriented analysis tool
(c) Structured analysis tool
(d) Prototype analysis tool

vi. Changes in requirements are handled in **1**
(a) Requirements management
(b) Requirements development
(c) Requirements analysis
(d) Requirements specification

P.T.O.

vii. Cohesion is a qualitative indication of the degree to which a module **1**
(a) Can be written more compactly
(b) Focuses on just one thing
(c) Is able to complete its function in a timely manner
(d) Is connected to other modules and the outside world

viii. Which one of the following views express the requirements of a system? **1**
(a) Use Case (b) Design (c) Process (d) Implementation

ix. Exhaustive testing encourages to **1**
(a) Exercise all the possible paths and variables
(b) Exercise limited paths and variables
(c) Exercise only the conditional statements
(d) None of these

x. Verification and validation are performed to ensure the **1**
(a) Design Quality (b) Product quality
(c) Product measure (d) All of these

Q.2 Attempt any two:

i. What is the basic difference between linear and evolutionary software process model? Explain. **5**

ii. Explain spiral model. Why is the spiral model called meta model? What are its advantages. **5**

iii. Name the different agile process models. Explain one of them in detail. **5**

Q.3 i. What do you mean by project management? Explain its importance. **3**

ii. Suppose a system for office automation must be designed. For the requirements, it was clear that there will be four major modules in the system: data entry (0.6 KDLOC), data update (0.6 KDLOC), query (0.8 KDLOC), and report generator (1.0 KDLOC). It is also clear from the requirements that this project will fall in the organic category. From the requirements, the ratings of the different cost driver attributes were assessed as follows: **7**
complexity (high- 1.15) storage (high- 1.06),
experience (low- 1.13) programmer capability (low- 1.17).
Determine the effort required to develop the software product and the nominal development time?

OR iii. Explain risk management process. Discuss the various risk planning activities. **7**

Q.4 i. Distinguish between functional and non functional requirements. **3**

ii. Why do we need requirements validation? Explain the various methods of requirements validation with their pros and cons. **7**

OR iii. What are the advantages of prototyping over traditional approaches for requirements analysis? Differentiate between throwaway and evolutionary prototyping. **7**

Q.5 i. What is the purpose of use case diagram? **2**

ii. What is coupling? Why is the coupling important in software designing? Explain different types of coupling with their example. **8**

OR iii. Explain Design Principles. Enumerate characteristics of a good software design. **8**

Q.6 Attempt any two:

i. Discuss and differentiate between verification and validation. **5**

ii. Define error, defect, and failure with suitable example. What is relationship among these. Differentiate fault and failure. **5**

iii. Explain system testing. Why are different tests needed to test the system? **5**

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Marking Scheme
CA5CO11 Software Engineering

Q.1	i.	The goal of software practitioners is to produce (d) All of these		**1**
	ii.	Which one of the following model has risk-driven approach? (c) Spiral Model		**1**
	iii.	Which of the following models has an extensive reuse of components? (a) Application Component Model		**1**
	iv.	An unfavourable situation that may lead to an undesirable outcome is known as (c) Risk		**1**
	v.	E-R Modeling is a (a) Data-oriented analysis tool		**1**
	vi.	Changes in requirements are handled in (a) Requirements management		**1**
	vii.	Cohesion is a qualitative indication of the degree to which a module (b) Focuses on just one thing		**1**
	viii.	Which one of the following views express the requirements of a system? (a) Use Case		**1**
	ix.	Exhaustive testing encourages to (a) Exercise all the possible paths and variables		**1**
	x.	Verification and validation are performed to ensure the (b) Product quality		**1**
Q.2		Attempt any two:		
	i.	Difference between linear and evolutionary software process model	2 Marks	**5**
		Explanation	3 Marks	
	ii.	Why called Meta Model	3 Marks	**5**
		Advantages	2 Marks	
OR	iii.	Names of agile process model	1.5 Marks	**5**
		Explanation of one	3.5 Marks	
Q.3	i.	Project Management Meaning	1.5 Marks	**3**
		Importance	1.5 Marks	
	ii.	Calculation of KLOC	0.5 Marks	**7**
		Use of Intermediate COCOMO Model formula	2.5 Marks	
		Calculation of EAF	1.5 Marks	
		Use of Time estimation formula	2.5 Marks	
OR	iii.	Risk management process		**7**
		1 Mark for each process step (1 mark * 4)	4 Marks	
		Risk planning activities	3 Marks	
Q.4	i.	Distinguish between functional and non functional requirements.		**3**
		0.75 Marks for each difference	(0.75 mark *4)	
	ii.	Meaning of requirement validation	3 Marks	**7**
		Methods of Requirements Validation	4 Marks	
OR	iii.	Advantages of prototyping	3 Marks	**7**
		Difference b/w throwaway and evolutionary prototyping	4 Marks	
Q.5	i.	Purpose of use case diagram		**2**
	ii.	Coupling	2 Marks	**8**
		Importance of coupling	2 Marks	
		Different types of coupling	4 Marks	
OR	iii.	Design Principles 0.5 each principle (0.5 mark * 8)	4 Marks	**8**
		Characteristics 0.5 for each (0.5 mark * 8)	4 Marks	
Q.6		Attempt any two:		
	i.	Discursion	2 Marks	**5**
		Difference b/w verification and validation	3 Marks	
	ii.	Definition error, defect, and failure with example	3 Marks	**5**
		Relationship among these.	2 Marks	
	iii.	System Testing	2 Marks	**5**
		Different Tests needed to test the system.	3 Marks	

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