KUMARAGURU
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Register Number:……

MCA DEGREE EXAMINATIONS: JUNE 2017

(Regulation 2015)

Second Semester

MASTER OF COMPUTER APPLICATION

P15CAT203: Software Engineering

COURSE OUTCOMES

CO1: Get an insight into the processes of software development.

CO2: Understand the problem domain for developing SRS and various models of software engineering.

CO3: Model software projects into high level design using DFD, UML diagrams.

CO4: Measure the process performance using various metrics.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Identify the correct sequence of the framework activities of software engineering. CO1 [K_1]

   (i) Modeling (ii) Planning (iii) Communication

   (iv) Deployment (v) Construction

   a) ii – i- iii- v- iv b) iii – ii- i- v- iv

   c) i – ii- iv- v- iii d) iii – i- ii- v- iv

2. Match the Scrum terminologies in List I and their meanings in List II. CO2 [K_3]

List I	List II
(A) Backlog	(i) Held daily and lasts for a short duration
(B) Sprints	(ii) Leads the meeting
(C) Scrum meeting	(iii) Prioritized list of project requirements
(D) Scrum master	(iv) Work units that are required to achieve a requirement

   a) (A)– (iii), (B)–(iv), (C)-(i), (D)-(ii) b) (A)– (i), (B)–(ii), (C)-(iv), (D)-(iii)

   c) (A)– (ii), (B)–(iv), (C)-(i), (D)-(iii) d) (A)– (iii), (B)–(ii), (C)-(i), (D)-(iv)

3. Anyone who benefits in a direct or indirect way from the system which is being developed is called as a _____. CO1 [K_2]

   a) Business Manager b) Executive

   c) Stakeholder d) Producer

4. A _____ takes an input-process-output view of the system. CO3 [K_1]

a) Data Flow Diagram b) Use case diagram

c) Class diagram d) Sequence diagram

5. Assertion (A): Software design is represented at a high level of abstraction. CO2 [K_4]

Reason (R):Software design can be directly traced to the specific system objective and more detailed data, functional and behavioral requirements.

a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A

c) A is true but R is false d) A is false but R is true

6. _____ is a qualitative measure of the degree to which classes are connected to one another. CO3 [K_2]

a) Component b) Cohesion

c) Attribute d) Coupling

7. _____ are applied at various points during software engineering and serve to uncover errors and defects that can then be removed. CO4 [K_1]

a) Reviews b) Project planning

c) Requirement analysis d) Effort estimation

8. Identify the correct elements of Software Quality Assurance from the list given below: CO4 [K_4]

(i) Standards (ii) Reviews and Audits (iii) Requirement analysis

(iv) Risk Management (v) Code refactoring

a) (i), (iii) and (v) only b) (i), (ii) and (iv) only

c) (ii) and (iii) only d) (ii), (iii) and (iv) only

9. _____ is the process of analyzing a program in an effort to create a representation of the program at a higher level of abstraction than source code. CO4 [K_1]

a) Document restructuring b) Data restructuring

c) Reverse engineering d) Inventory analysis

10. The capability levels of CMMI can be arranged in which of the given order. CO4 [K_2]

(i) Performed (ii) Defined (iii) Incomplete (iv) Managed (v) Optimized

(vi) Quantitatively managed

a) ii-i-iv-iii-vi-v b) i-iii-iv-ii-v-vi

c) i-ii-iv-iii-vi-v d) iii-i-iv-ii-vi-v

PART B (10 x 2 = 20 Marks)

11. Analyze the drawbacks of waterfall model. CO2 [K_4]

12. Most agile process models recommend face-to-face communication. Yet today, CO2 [K_4]

members of a software team and their customers may be geographically separated from one another. Do you think this implies that geographical separation is something to avoid? Suggest two ways to overcome this problem.

13.	List the elements of requirements model.	CO2	[K_1]
14.	Draw a context level DFD for a security system that can be used in industries.	CO3	[K_3]
15.	How do we assess the quality of a software design?	CO3	[K_2]
16.	"Coupling between modules should be low". Why?	CO3	[K_3]
17.	Differentiate between an error and a defect.	CO4	[K_2]
18.	What is unit testing?	CO4	[K_1]
19.	Define People CMM.	CO1	[K_1]
20.	How can an end-user support personal extend support for software?	CO1	[K_2]

PART C (6 x 5 = 30 Marks)

21.	Discuss how and when prototyping model can be used in software development.	CO2	[K_2]
22.	Develop a use case model for a library management system.	CO3	[K_6]
23.	Explain the taxonomy of architectural styles that are available to the software engineer.	CO3	[K_2]
24.	With a neat sketch explain the process of translating requirements model into the design model.	CO2	[K_1]
25.	Explain the role, content and features of Software Configuration Management repository.	CO4	[K_1]
26.	Discuss how Business Process Reengineering results in new software functionality.	CO1	[K_4]

Answer any FOUR Questions

PART D (4 x 10 = 40 Marks)

27.	Explain how XP values and XP process are used in agile software development.		CO2	[K_2]
28.	(i) Discuss the approaches that can be used to elicit requirements from the stakeholders.	(8)	CO2	[K_3]
	(ii) You are given the responsibility to elicit requirements from a customer who tells that he is too busy to meet you. What should you do?	(2)		
29.	Explain how traditional components can be designed with suitable examples.		CO3	[K_1]
30.	(i) Explain the guidelines that are to be followed while conducting formal technical reviews.	(5)	CO4	[K_3]

(ii) Assume that 145 errors have been introduced in the requirements model and that each error will be amplified by 2 times into design and an additional 40 design errors are introduced and then amplified by 3 times into code where an additional 50 errors are introduced. Assume further that all unit testing will find 20% of all errors, integration will find 20% of remaining errors and validation tests will find 10% of the remaining errors. Assume that requirements, design and code reviews are conducted and are 50% effective in uncovering all errors at that step. How many errors will be released to the field? (5)

31. Explain the activities that are applied in an iterative manner to foster continuous software process improvement. CO1 [K_2]

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