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Question Bank for the Units – I & II

VI	**IIIrd Yr / VI th Semester–B.E**
104	**Department of Computer Science and Engineering**
CCS356	**OBJECT ORIENTED SOFTWARE ENGINEERING**

UNIT I - SOFTWARE PROCESS AND AGILE DEVELOPMENT

Introduction to Software Engineering, Software Process, Perspective and Specialized Process Models – Introduction to Agility-Agile process-Extreme programming-XP Process-Quality management-SQA-SQA plan.

PART-A (2 - MARKS)

Q. No	QUESTIONS	Competence	BT Level
1.	**Write** the IEEE definition of software engineering.	Remember	BTL-1
2.	**Demonstrate** your understanding of umbrella activities of a Software process.	Apply	BTL-3
3.	If you have to develop a word processing software product, what process model will you choose? Justify your answer and **examine.**	Apply	BTL-3
4.	Differentiate verification and validation. Give an example.	Understand	BTL-2
5.	**List** the characteristics of software contrasting it with characteristics of hardware.	Remember	BTL-1
6.	**Explain** How do we create a process that can manage unpredictability?	Evaluate	BTL-5
7.	**Identify** the human factors considered for an agile software development.	Remember	BTL-1
8.	Is it possible to realize Win-Win spiral model for software. **analyse**	Analyze	BTL-4
9.	**Summarize** the pros and cons of iterative software development model.	Evaluate	BTL-5
10.	**Define** agile process **.Give** any two agile principles.	Remember	BTL-1
11.	**List** two deficiencies in waterfall model. Which process model do you suggest to overcome each deficiency	Remember	BTL-1
12.	**Compare** perspective and specialized process model.	Analyze	BTL-4
13.	Predict about XP story.	Understand	BTL-2
14.	**Discuss** about the various drawbacks of spiral model	Understand	BTL-2
15.	**Generalize** on any two characteristics of software as a product.	Create	BTL-6
16.	**Show** what led to the transition from product oriented development to process oriented development.	Apply	BTL-3
17.	**Differentiate** SDD and DDD.	Analyze	BTL-4
18.	**Create** six new practices that are designed to help ensure that an XP project works successfully for significant projects within a large organization.	Create	BTL-6
19.	**Summarize** on extreme programming.	Understand	BTL-2

20.	**Why** system engineers must understand the environment of a system?Give two reasons.		Remember	BTL-1
	PART-B (13- MARKS)			
1.	Define software life cycle. **List** all life cycle models and explain spiral model with a neat diagram.	(13)	Remember	BTL-1
2.	(i) **Explain** alteast one scenario where a)RAD model would be applicable and not the waterfall model. b)waterfall model is preferable compare to all other models. (ii) **What** are the pros and cons of using mathematical approach for software development?	(7) (6)	Analyze	BTL-4
3.	(i) **Describe** about agile modeling in detail. (ii) **Explain** the component based software development model with a neat sketch	(7) (6)	Remember	BTL-1
4.	(i)**Write** short notes on aspect oriented software development. (ii) **Explain** in detail about personal process models and team process models.	(7) (6)	Evaluate	BTL-5
5.	(i) **What** is a process model? Describe the process model that you would choose to manufacture a car explain giving suitable reasons. (ii) **Describe** the various Evolutionary Process Models with neat diagram.	(7) (6)	Understand	BTL-1
6.	**(i) Compare** the life cycle models based on their distinguishing factors, strengths and weaknesses. (ii) **Discuss** the prototyping model .what is the effect of designing prototype on the overall cost of the software project?	(7) (6)	Analyze	BTL-4
7.	(i) **Explain** in detail about iterative and waterfall model. (ii)Write short notes on concurrent models.	(7) (6)	Analyze	BTL-4
8.	(i) **Discuss** in detail about Scrum. (ii) **What** is the significance of the spiral model when compared with other model?	(7) (6)	Understand	BTL-2
9.	(i)**Discuss** the Extreme Programming process. (ii)**What** are some of the issues that lead to an XP debate?	(7) (6)	Understand	BTL-2
10.	(i) **Illustrate** about agility and cost of change. (ii) **What** key traits must exist among the people on an effective software team?	(7) (6)	Apply	BTL-3
11.	(i) **What** is agility in the context of software engineering work? (ii) **List** the principles of agile software development.	(7) (6)	Understand	BTL-2
12.	(i) **Compose** your view about agile software development. **(ii) Generalize** your view about extreme programming.	(7) (6)	Create	BTL-6
13.	(i) **Describe** about pair programming and how unit tests used in XP? (ii) **List** the new practices appended to XP to create IXP.	(7) (6)	Remember	BTL-1
14.	(i) E**xplain** software product engineering with its services and advantages. (ii)**Write** a note on the unique characters of a software.	(7) (6)	Apply	BTL-3
	PART-C (15- MARK)			
1.	**Generalize** about system engineering hierarchy with suitable diagram and give an overview of the Business process Engineering with a diagram.	(15)	Create	BTL-6
2.	**Compare** the following life cycle models based on their distinguishing factors, strengths and weakness-waterfall model, AD model, Spiral	(15)	Evaluate	BTL-5

	Model, and Formal Methods Model.(Present in the form of table only-use diagrams wherever necessary).			
3.	**Explain** about the umbrella activities which support software development process and discuss about their necessity in maintaining the quality in both software process and product that is being developed for railway reservation system.	(15)	Evaluate	BTL-5
4.	**Assume** that you are the technical manager of a software development organization. A Client approached you for a software solution the problems stated by the client have uncertainties which lead to loss if it not planned and solved which software development model you will suggest for this project –justify. **Explain** that model With its pros and cons and neat sketch.	(15)	Evaluate	BTL-5

UNIT II- REQUIREMENTS ANALYSIS AND SPECIFICATION

Requirement analysis and specification – Requirements gathering and analysis – Software Requirement Specification – Formal system specification – Finite State Machines – Petrinets – Object modelling using UML – Use case Model – Class diagrams – Interaction diagrams – Activity diagrams – State chart diagrams – Functional modelling – Data Flow Diagram- CASE TOOLS.

PART-A (2 - MARKS)

Q.No	QUESTIONS	BT Level	Competence
1.	**Give** a use case diagram for an online shopping which should provide provisions for registering authenticating the customers and also online payment through any payment gateway like PayPal.	Understand	BTL-2
2.	**Define** feasibility study. And list the types.	Remember	BTL-1
3.	**Classify** the following as functional /non-functional requirements for a banking system (a)Verifying bank balance (b) Withdrawing money from bank (c) Completion of transactions in less than one second. (d)Extending the system by providing more tellers for the customers	Apply	BTL-3
4.	Draw and **explain** a simple semantic data model for a library Management system	Analyze	BTL-4
5.	**List** the characteristics of a good system requirements specification(SRS)	Remember	BTL-1
6.	**Define** Quality Function Development(QFD)	Remember	BTL-1
7.	How requirements are **classified**? List them with an example for each.	Apply	BTL-3
8.	**Develop** the spiral view of requirement engineering process.	Create	BTL-6
9.	**Differentiate** between normal and exciting requirement.	Understand	BTL-2
10.	**Point out** the problems faced when user requirements are written in natural language.	Analyze	BTL-4
11.	**Distinguish** between the terms inception, elicitation and elaboration with reference to requirements.	Understand	BTL-2
12.	Define Finite State Machine	Remember	BTL-1
13.	Explain in Detail about the Types of Finite State Machine	Analyze	BTL-4
14.	What is Meant by Petri nets	Understand	BTL-2
15.	Kindly Explain the Types of petri nets	Evaluate	BTL-5
16.	What is Object Modeling?	Remember	BTL-1
17.	Define UML?	Apply	BTL-3

18.	**Define** Petri Net and list types of traceability in a software process.		Remember	BTL-1
19.	Difference between Sequence and Collaboration Diagram		Evaluate	BTL-5
20.	Explain State Chart Diagram		Create	BTL-6
	PART-B (13- MARK)			
1.	(i) **Differentiate** functional and non-functional requirements. (ii) **Give** the steps involved in initiating requirements engineering.	(7) (6)	Understand	BTL-2
2.	(i) What are called as non-functional requirements? **Explain** in detail. (ii) **Summarize** on user requirements and system requirements in detail.	(7) (6)	Understand	BTL-2
3.	(i) **List** and **explain** the Three aspects that SRS should clearly document. (ii) **List** the characteristics of good SRS document and their components.	(7) (6)	Remember	BTL-1
4.	(i) **Demonstrate** the structure of requirement document. (ii) **Show** the possible users of requirement document.	(7) (6)	Apply	BTL-3
5.	(i)**Explain** the different ways of writing a system requirement specification. (ii) **Describe** the spiral view of system requirement.	(7) (6)	Remember	BTL-1
6.	**Analyze** about the requirement engineering process and how the requirements are managed.	(13)	Analyze	BTL-4
7.	(i) What is the purpose of feasibility study? (ii) State the inputs and results of the feasibility study. (iii) **List** any four issues addressed by a feasibility study. (iv) **Elaborate** the phases involved when carrying out a feasibility study.	(4) (3) (3) (3)	Remember	BTL-1
8.	What is requirement elicitation? Briefly describe the various activities performed in requirements elicitation with an example of a watch system that facilitates to set time and alarm and **assess**.	(13)	Evaluate	BTL-5
9.	Draw UML Diagram for Passport Automation System	(13)	Create	BTL-6
10.	Write short notes on the **list** given below (i) Requirements discovery and Interviewing. (ii) Scenarios and Use cases. (iii) Ethnography.	(5) (4) (4)	Remember	BTL-1
11.	Explain Class diagrams – Interaction diagrams in detail	(13)	Apply	BTL-3
12.	(i) **Analyze** briefly about the structural system analysis in detail. (ii) **Explain** about classical perti nets model.	(6) (7) (6)	Understand	BTL-2
13.	Explain Object modeling using UML Diagram	(13)	Analyze	BTL-4
14.	Explain Class Diagram in Detail with some Example and differentiate with Package Diagram	(13)	Analyze	BTL-4

PART-C (15 -MARKS)				
1.	**Develop** an online railway reservation system, which allows the user to select route, book/cancel tickets using net banking/credit/debit cards. The site also maintains the history of the passengers. For the above system, list and draw the use case scenario and model the above specification.	(15)	Create	BTL-6
2.	**Assess** on software requirement specification for banking system.	(15)	Evaluate	BTL-5
3.	Draw and **Explain** the use case diagram for an ATM system in requirement elicitation.	(15)	Evaluate	BTL-5
4.	**Develop** the process of ordering a pizza over the phone. Draw the use case diagram and also sketch the activity diagram representing each step of the process, from the moment you pick up the phone to the point where you start eating the pizza. Include activities that others need to perform. Add exception handling to the activity diagram you developed. Consider at least two exceptions (e.g. delivery person wrote down wrong address, deliver person brings wrong pizza).	(15)	Create	BTL-6