

Total No. of Questions : 5]

PA-2553

SEAT No. :

20226

[Total No. of Pages : 6

[5948]103

M.C.A. - I (Management)

IT - 13 : OBJECT ORIENTED SOFTWARE ENGINEERING
(2020 Pattern) (Semester - I)

Time : 2½ Hours]

Instructions to the candidates:

[Max. Marks : 50

- 1) All questions are compulsory.
- 2) For MCQ select appropriate choice from the given options.
- 3) Figures to right indicates full marks.
- 4) Draw neat diagrams and quote examples the wherever necessary.
- 5) Use of any type of calculator is not allowed.

Q1) Attempt the following Multiple Choice Questions. Each question carries half mark. **[10]**

- a) If you were a lead developer of a software company and you are asked to submit a project within a stipulated time frame with no cost barriers, which model you select.
 - i) Waterfall
 - ii) Spiral
 - iii) RAD
 - iv) Incremental
- b) From the following, which software has been characterized by 'Number Crunching' Algorithms?
 - i) System Software
 - ii) Artificial Intelligence software
 - iii) Embedded Software
 - iv) Engineering and Scientific Software
- c) Project risk factor is considered in which model?
 - i) Water fall
 - ii) Spiral
 - iii) RAD
 - iv) RUP
- d) Which phase of the RUP is used to establish a business case for the system?
 - i) Transition
 - ii) Construction
 - iii) Elaboration
 - iv) Inception

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- c) The _____ model is preferred for development when the requirements are not clear
- RAD
 - RUP
 - Evolutionary
 - Water fall
- f) Software Engineering primarily aim's on building
- reliable software
 - cost-effective software
 - reliable and cost-effective software
 - Sustainable software
- g) The _____ approach involves building a small version of the intended system prior to building the proposed completed system
- Water fall
 - Spiral
 - RAD
 - Prototyping
- h) What does the RAD process stand for?
- Rapid Application Development
 - Recent Application Design
 - Recent Application Development
 - Rapid Application Design
- i) What is the major advantage of using Incremental model?
- Customer can respond to each increment
 - Easier to test and debug
 - Get a product to the market early
 - Easier to test and debug and get a product to the market early
- j) Choose an internal software quality
- scalability
 - usability
 - resuability
 - rehability
- k) The SRS is said to be _____ if and only if no subset of individual requirements described in it conflict with each other
- correct
 - consistent
 - unambigious
 - veritiable

- l) Consider a system where, "a heat sensor detects an intrusion and alerts the security company". What kind of a requirement the system is providing?
- Functional
 - Non-functional
 - User Interface
 - Internal Software Quality
- m) _____ is the understanding of software product limitations, learning system related problems or changes to be done in the existing system before hand, identifying and addressing impact of project on organisation and personnel
- Software Design
 - Software Analysis
 - Feasibility study
 - Requirement Gathering
- n) When a company plans to develop a generic product, who among the following is usually the source of the requirement?
- Development Team Members
 - Project Manager
 - Marketing Personnel
 - Personnel from Finance Management
- o) In user Interface Design, tools are used to,
- make a prototype and implement the design model
 - get qualitative results
 - get quantitative results
 - make a prototype and implement the design model and get qualitative results
- p) What does Designing consistent interfaces means?
- using the same design patterns
 - using the same sequence of actions
 - using the same design patterns and sequence of actions
 - using existing designs of similar applications

- q) Who is responsible for ensuring that the scrum values and pillars are adhered to all times?
- i) Product Owner
 - ii) Scrum Master
 - iii) Development Team
 - iv) Each Member
- r) DSDM originally sought to provide some discipline to the _____ method
- i) Scrum
 - ii) Spiral
 - iii) RAD
 - iv) RUP
- s) Which method is used for prioritizing product features in DSDM methodology?
- i) MoSCoW
 - ii) PaRiS
 - iii) LoNDoN
 - iv) BeRLiN
- t) During which scrum ceremony does the team inspect its processes to adapt during subsequent sprints?
- i) Sprint Retrospective
 - ii) Daily standup
 - iii) Story Grooming
 - iv) Sprint closure

Q2) Write a Software Requirement Specification as per SRS IEEE template for the scenario. [8]

A system is to be developed for scheduling the courses in MCA programme, based on the input about classrooms, lecture times, and time preferences of the different instructors.

OR

A web based application is to be developed for e-administration of computer labs of an institution which eases the tasks of the administrator, instructors, HoDs of various departments, technical staff and students. The computing facilities include computers, Printers, LCDs, Digital Boards etc. on a 24x7 basis to carry out academic experiments with all the necessary software installed and configured. The software should also help the administrator and instructors to maintain proper documentation of the computing systems.

Q3) Institute of Management studies (IMS) has organised an International conference with various subject tracks. The conference details are uploaded on the web site developed by the institute. A participant has to register online under category student, Faculty member, Research scholar and corporate. He/She has to upload an abstract of his/her paper. If It gets selected he/she has to upload final paper along with the registration fee. The registration fee varies according to the category of the participants. The payment should be done online. The paper presentation schedule will be displayed on the website under the defined tracks. After the conference, the presented papers get published in online journal and participants can give his/her feedback on line.

Draw the following diagrams for the above case:

- a) Use Case Diagram [10]
- b) Class Diagram [10]

OR

- a) Draw Activity diagram for registering a billing complaint to MSEB. [10]
- b) Draw State Transition Diagram for a toy Robot, with following functionalities. [10]

- i) When the Robot is SWITCHED ON, it should greet as per the time (Morning, Afternoon etc)
- ii) It should behave as per your order - "Walk Straight", "Run", and "Stop".
- iii) Set time for the robot
- iv) After 6pm, it SWITCHES ON its own lights
- v) When the battery is down it gives an indication for charging it by saying "Battery Down?" Similarly, after the charging is complete it says "Battery Full".

- Q4) a) Elaborate on the artefacts in Scrum. [4]
b) Enumerate the attributes of web-based systems and Applications. [4]

OR

- a) Explain the four values of Agile Manifesto with its meaning. [4]
b) Elaborate on any four Extreme Programming Practices. [4]

Q5) Draw the User Interface Screen to lodge a grievance against noise pollution in your neighbourhood on the government noise pollution grievance redressal and monitoring system. [4]

OR

Draw the user Interface Screen to generate visitors Gate pass. [4]