BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Tech.(CSE)-AIML-2021
Course Name – Software Engineering
Course Code - PCC-CSM701
(Semester VII)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Identify which of the following best describes software:
a) A tangible product
b) A collection of executable code
c) Physical hardware components
d) A digital manual

(ii) Identify the reason for the evolving nature of software:
a) Hardware improvements
b) Changing user requirements
c) Fixed methodologies
d) Stable technology trends

(iii) Identify which of the following is considered a software myth:
a) Software development is straightforward
b) Software does not require maintenance
c) Software is adaptable to changes
d) Software is always error-free

(iv) Product design is mainly_____.
a) Top-down approach
b) Bottom-up approach
c) Top-down & Bottom-up approach
d) None of the mentioned

(v) Difference between Decision Trees and Decision Tables are _____
a) value to end user
b) form of representation
c) one shows the logic while the other shows the difference
d) none of these

(vi) Decision trees uses_____ Examine and choose the correct alternative
a) pictorial depiction of alternate conditions
b) nodes and branches
c) consequences of various depicted alternates
d) all of these

(vii) Identify the layer that acts as the framework for software engineering activities:
a) Tools
b) Methods
c) Process
d) Quality Focus

(viii) Identify the main objective of the quality focus layer in software engineering:
a) To ensure the use of the latest tools
b) To maintain a standard process model
c) To achieve customer satisfaction and product quality
d) To streamline development methods

(ix) Identify the primary characteristic that distinguishes software engineering from basic programming:
a) Focus on hardware
b) Use of organized methods and processes
c) Writing code without documentation
d) Creating software alone

(x) Cite an advantage of using version control systems (VCS).
a) Preventing collaboration among team members
b) Tracking changes and facilitating collaboration
c) Automatic code deployment
d) Exclusively used for documentation management

(xi) Identify a key principle of the SOLID object-oriented design principles.
a) Inheritance is always preferable
b) Classes should have many responsibilities
c) Classes should be open for modification
d) Dependencies should be minimized

(xii) Identify a common principle of clean code development.
a) Maximizing code complexity
b) Consistent use of descriptive variable names
c) Frequent use of global variables
d) Minimizing code duplication

(xiii) Determine the main advantage of the Agile model in software Engineering
a) Comprehensive documentation
b) Flexibility in adapting to changes
c) Strict, predefined processes
d) Large-scale software system development

(xiv) Construct the software development model emphasizes the simultaneous execution of development and testing phases.
a) V-Model
b) Waterfall model
c) Prototype model
d) Spiral model

(xv) Employ the model is a working prototype built early in the development process to help refine requirements.
a) Waterfall model
b) Agile model
c) Prototype model
d) Incremental model

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Compute the sequence of interactions between an ATM machine and a user during a cash withdrawal using a sequence diagram. (3)
3. Explain the system Development Life cycle(SDLC). (3)
4. Explain the three modes of the COCOMO model. (3)
5. Define the role of the process layer in software engineering as a layered technology. (3)
6. Write about the purpose of a context diagram in software engineering. (3)

OR

Write about the differences between a context diagram and a data flow diagram (DFD). (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Describe of Evolutionary Process Models and explain their core principles. (5)
8. Discuss the structure and Phases of spiral model. (5)

9. Analyze the benefits and challenges of implementing a software testing framework in a development project and discuss key considerations in selecting a suitable framework. (5)
10. Compare the use of class diagrams and activity diagrams in the early stages of software development. (5)
11. Evaluate the importance of activity diagrams in minimizing software development risks during project planning and execution. (5)
12. Write about the concept of Top-Down design in software engineering and its benefits. (5)

OR

Write about the Bottom-Up design approach in software engineering and its significance. (5)

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