

P P SAVANI UNIVERSITY

Fifth Semester of B.Sc. (IT) Examination

December 2021

SSIT3010 Software Engineering

02.12.2021, Thursday

Time: 9:00 a.m. To 11:30 a.m.

Maximum Marks: 60

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION - I

Q - 1 Answer the Following: (Attempt any five) [05]

(i) Which of the following activities of the generic process framework delivers a feedback report?

- (a) Deployment (c) Planning
(b) Modeling (d) Construction

(ii) RAD stands for _____.

(iii) Coupling represents a degree to which a module

- (a) can be written more compactly
(b) is connected to other modules and the outside world
(c) is able to complete its function in a timely manner
(d) focuses on just one thing

(iv) KLOC stands for _____.

(v) Which of the following is an important factor that can affect the accuracy and efficacy of estimates?

- (a) Project size
(b) Planning process
(c) Project complexity
(d) Degree of structural uncertainty

(vi) Design phase comes after implementation in SDLC. True/False?

Q - 2 Describe working of a prototyping model with their advantages and disadvantages. [06]

Q - 3(a) What is Coupling. Discuss Classification of Coupling. [06]

OR

Q - 3(a) What are golden rules of User Interface (UI) design and other recommendations. [06]

Q - 3(b) Calculate the function point, productivity and cost per function for software with value adjustment factors 5, 1, 0, 4, 3, 5, 4, 3, 4, 5, 2, 3, 4, 2 by using following Function Units (Weighting factor): The number of EI(Avg): 22, The number of EO(Low): 45, The number of EQ(High): 06, The number of ILF(Avg): 05, The number of ELF(Low): 02. Effort:37 MM, Budgeting/Cost: \$7520 per month. [06]

Function Units	Low	Avg	High
EI	3	4	6
EO	4	5	7
EQ	3	4	6
ILF	7	10	15
EIF	5	7	10

Q - 4 Attempt any one [07]

(i) Draw class diagram for Zomato (Online food delivery system).

(ii) What's SRS? Explain all different types of requirements.

SECTION - II

- Q - 1** Answer the Following: **[05]**
- (i)** White Box techniques are also classified as
- (a) Design based testing (c) Error guessing technique
(b) Structural testing (d) None of the mentioned
- (ii)** Which of the following is non-functional testing?
- (a) Black box testing (c) Unit testing
(b) Performance testing (d) None of the mentioned
- (iii)** CMM stands for _____
- (iv)** The ISO 9000 series of standards is a program that can be used for external quality assurance purposes.
- (a) True (b) False
- (v)** Which of the following is not used in measuring the size of the software?
- (a) KLOC (c) Size of module
(b) Function Points (d) None of the mentioned
- Q - 2 (a)** What are the objectives of testing? Explain White Box Testing. **[05]**
- Q - 2 (b)** Explain CMM quality standard in detail. **[05]**
- OR**
- Q - 2 (b)** Why is it so important to include boundary values in your black-box test data? Illustrate with example. **[05]**
- Q - 3 (a)** Explain the different integration testing approaches. **[05]**
- Q - 3 (b)** Justify the statement "Software maintenance is costlier" **[05]**
- OR**
- Q - 3 (a)** Why Team/Team Leaders plays vital role in Software Project Management? Explain do's & don'ts. **[05]**
- Q - 3 (b)** Explain the objectives and advantages of Unit testing. **[05]**
- Q - 4** Attempt any one. **[05]**
- (i)** Discuss computer aided software engineering (CASE) tools and its benefits. **[05]**
- (ii)** What is ISO and explain ISO 9001 standard?

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SECTION - I

- Q - 1** Answer the Following: (Attempt any five) [05]
- (i)** Which objective is most difficult to achieve?
- (a) Execute every statement of a program at least once
 - (b) Execute every branch statement of a program at least once
 - (c) Execute every path of a program at least once
 - (d) Execute every condition of a branch statement of a program at least once
- (ii)** The activity that distributes estimated effort across the planned project duration by allocating the effort to specific software developing tasks is _____
- (a) Project scheduling
 - (b) Detailed schedule
 - (c) Macroscopic schedule
 - (d) None of the mentioned
- (iii)** Regardless of application area, project size, or complexity, software development work may be divided into three generic phases: the _____ phase, which focuses on what, the _____ phase, which focuses on how, and the _____ phase, which focuses on change.
- i. support
 - ii. Development
 - iii. definition
- (a) iii, ii, i
 - (b) iii, i, ii
 - (c) i, ii, iii
 - (d) ii, i, iii
- (iv)** _____ is not a fundamental activity for software processes in software development.
- (v)** _____ is a software development life cycle model that is chosen if the development team has less experience on similar projects.
- (vi)** COCOMO stands for _____
- (vi)** FP stands for _____
- Q - 2 (a)** Project size of 200 KLOC is to be developed. Software development team has average experience on similar type of projects. The project schedule is not very tight. Calculate the Effort, development time, average staff size, and productivity of the project. [05]
- Q - 2 (b)** What are the various activities in WINWIN Spiral Model? [05]
- OR**
- Q - 2 (b)** Explain with two examples of software development projects would be amenable to evolutionary prototyping. Why is evolutionary prototyping suitable in these cases? [05]
- Q - 3 (a)** Write short note on user interface design process. [05]
- Q - 3 (b)** Why Risk Management is important in software engineering? Discuss it with suitable example [05]
- OR**
- Q - 3 (a)** How function point metric work? Explain with it's all advantages and disadvantages. [05]
- Q - 3 (b)** Define the concept of cohesion and coupling. State the difference. [05]
- Q - 4** Attempt any one. [05]
- (i) What is project effort estimation? Explain in detail.
 - (ii) Prepare use case diagram for a customer making purchases online on Meesho platform.

SECTION - II

Q - 1 Answer the Following:

[05]

- (i) The primary objective of formal technical reviews is to find _____ during the process so that they do not become defects after release of the software.
- (a) errors
 - (b) equivalent faults
 - (c) failure cause
 - (d) none of the mentioned
- (ii) Alpha testing is done at _____.
- (a) Developer's end
 - (b) User's end
 - (c) Developer's & User's end
 - (d) None
- (iii) MTBF stands for _____.
- (iv) Stubs and drivers are used in _____ testing.
- (v) SQA stands for _____.

Q - 2 Explain Boehm's approach for efficient software project management.

[06]

Q - 3(a) Explain recommended coding standards & guidelines for good programming practices.

[06]

OR

Q - 3(a) What's verification & Validation in Testing? Differentiate both in detail.

[06]

Q - 3(b) What's software testing? Define types of testing.

[06]

Q - 4 Attempt any one.

[07]

(i) Define Six-Sigma quality standard and its DMAIC methodology.

(ii) Discuss computer aided software engineering tools and its benefits.
