Code : 051414

B.Tech 4th Semester Exam., 2019

SOFTWARE ENGINEERING

Time : 3 hours   Full Marks : 70

Instructions :

(i) *The marks are indicated in the right-hand margin.*

(ii) *There are **NINE** questions in this paper.*

(iii) *Attempt **FIVE** questions in all.*

(iv) *Question No. **1** is compulsory.*

1. Choose the correct answer for any *seven* of the following :   2×7=14

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

    (i) Communication

    (ii) Planning

    (iii) Modelling and construction

    (iv) Deployment

(b) Which one of the following is not an umbrella activity that complements the five process framework activities and help team manage and control progress, quality, change and risk?

    (i) Reusability management

    (ii) Risk management

    (iii) Measurement

    (iv) User reviews

(c) Four types of change are encountered during the support phase. Which one of the following is not one that falls into such category?

    (i) Translation

    (ii) Correction

    (iii) Adaptation

    (iv) Prevention

(d) Which one of the following is not a fundamental activity for software processes in software engineering?

    (i) Software verification

    (ii) Software validation

    (iii) Software design and implementation

    (iv) Software evolution

(e) Which four framework activities are found in the extreme programming (XP)?

(i) Analysis, design, coding, testing

(ii) Planning, analysis, design, coding

(iii) Planning, design, coding, testing

(iv) Planning, analysis, coding, testing

(f) Which of the following statements explains portability in non-functional requirements?

(i) It is a degree to which software running on one platform can easily be converted to run on another platform.

(ii) It cannot be enhanced by using languages, OS' and tools that are universally available and standardized.

(iii) The ability of the system to behave consistently in a user-acceptable manner when operating within the environment for which the system was intended.

(iv) None of the above

(g) The incorrect statement with respect to non-functional requirement (NFR) is

(i) product-oriented approach—focus on system (or software) quality

(ii) process-oriented approach—focus on how NFRs can be used in the design process

(iii) quantitative approach—find measurable scales for the functionality attributes

(iv) qualitative approach—study various relationship between quality goals

(h) What are the four dimensions of dependability?

(i) Usability, reliability, security, flexibility

(ii) Availability, reliability, maintainability, security

(iii) Availability, reliability, security, safety

(iv) Security, safety, testability, usability

(i) What kind of approach was introduced for elicitation and modelling to give a functional view of the system?

    (i) Object-oriented design (by Booch)

    (ii) Use cases (by Jacobson)

    (iii) Fusion (by Coleman)

    (iv) Object-modelling technique (by Rumbaugh)

(j) ____ and ____ are the two viewpoints discussed in controlled requirements expression (CORE).

    (i) Functional, nonfunctional

    (ii) User, developer

    (iii) Known, unknown

    (iv) All of the above

2. *(a)* Explain software development life cycle. Discuss various activities during SDLC.

    (b) What are various myths about software? 7+7=14

3. *(a)* What are the main objectives of software verification and validation? Briefly explain different V and V techniques.

    (b) Discuss the software metric that can be applied to the qualitative assessment of software quality and side effects that occur during maintenance phase. 7+7=14

4. Admission to a professional course is subject to the following conditions :

    Marks in Mathematics $>=60$

    Marks in Physics $>=50$

    Marks in Chemistry $>=40$

    Marks in all three courses $>=200$

If aggregate marks of an eligible candidate are more than 225, he/she will be eligible for honours course, otherwise he/she will be eligible for pass course. The program reads the marks in the three courses and generates the following outputs :

    (i) Not eligible

    (ii) Eligible to pass course

    (iii) Eligible to honours course

Design test cases using decision table testing technique. 14

5. *(a)* Write the taxonomy of architectural styles and give a brief description of each style.

(b) State and explain the generic tasks that are always performed in user interface design. 7+7=14

6. Consider a large-scale project for which the manpower requirement is $K = 600$ PY and the development time is 3 years and 6 months.

(a) Calculate the peak manning and peak time.

(b) What is the manpower cost after 1 year and 2 months? 7+7=14

7. Write short notes on the following : 5+5+4=14

(a) Unified modelling language

(b) Object-oriented analysis modelling

(c) Object-oriented design concepts and methods

8. (a) Why is software maintenance required? Briefly explain software maintenance process models.

(b) What is software quality? What are three dimensions of software quality? Explain in brief. 7+7=14

(Turn Over)

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9. (a) List out various activities that are encompassed by system designed process under object-oriented design and explain each one briefly.

(b) Explain the object modularization with example. 9+5=14

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