

Code : 051614

B.Tech 6th Semester Exam., 2018

SOFTWARE ENGINEERING

Time : 3 hours

Full Marks : 70

Instructions :

- (i) All questions carry equal marks.
- (ii) There are **NINE** questions in this paper.
- (iii) Attempt **FIVE** questions in all.
- (iv) Question No. 1 is compulsory.

1. Answer any seven of the following as directed :

- (a) What is throwaway prototype?
- (b) What is the most popular model for student program?
  - (i) Waterfall model
  - (ii) Built-and-fix model
  - (iii) Spiral model
  - (iv) Rational unified model

( Choose the correct option )

8AK/399

( Turn Over )

( 2 )

(c) Which model is suitable for stable and known requirements?

(i) Spiral model

(ii) Prototyping model

(iii) Waterfall model

(iv) Iterative enhancement model

( Choose the correct option )

(d) Write any four differences between flowchart and DFD.

(e) Write the name of different categories of S/W maintenance models.

(f) Which model is also known as 'design a little, build a little, test a little, deploy a little' model?

(g) All verification activities are

(i) testing

(ii) dynamic testing

(iii) functional testing

(iv) structural testing

( Choose the correct option )

(h) Boundary value analysis generates  $x$  test cases for  $n$  variables. The value of  $x$  is

(i)  $8n + 1$

(ii)  $6n + 1$

(iii)  $4n + 1$

(iv)  $2n + 1$

( Choose the correct option )

8AK/399

( Continued )

( 3 )

- (i) Risk is defined as  
 probability  $\times$  priority  
 (ii) probability  $\times$  size  
 (iii) priority  $\times$  size  
 (iv) probability  $\times$  impact

( Choose the correct option )

- (ii) A fault is nothing but a/an  
 error   
 (ii) defect  
 (iii) mistake

- All of the above

( Choose the correct option )

2. (a) What is the principal aim of the software engineering discipline? What does the discipline of software engineering discuss?  
 (b) Do you agree with the statement, "The emphasis of exploratory programming is on error correction while the software engineering practices emphasize error prevention"? Give reasons to justify your answer.

3. Which life cycle model you will follow for developing software for each of the following applications? Mention the reasons justifying your choice of a particular life cycle model :

- (a) A well-understood data processing application

8AK/399

( Turn Over )

( 4 )

- (b) A new software product that would connect computers through satellite communication. Assume that your team has no previous experience in developing satellite communication software

- (c) A software product that would function as the controller of a telephone switching system

- (d) New library automation software that would link various libraries in the city

- (e) Extremely large software that would provide, monitors and control cellular communication among its subscribers using a set of revolving satellites

- (f) A new text editor

- (g) A compiler for a new language

4. (a) Discuss the significance and use of requirement engineering. What are the problems in the formulation of requirements?

- (b) Explain the importance of requirements. How many types of requirements are possible and why?

5. (a) What is project management? What are the characteristics that define a project? Differentiate between project and process management.

8AK/399  
AKUBihar.com

( Continued )

( 5 )

(b) Is it true that a software product can always be developed faster by having a larger development team of competent software engineers? Justify your answer.

6. Suppose you are developing a software product in the organic mode. You have estimated the size of the product to be about 100000 lines of code. Compute the nominal effort and the development time.

7. What is software testing? Design the black-box test suite for a function named quadratic solver. Quadratic solver accepts the three floating-point numbers (a, b, c) represent a quadratic equation of the form  $ax^2 + bx + c = 0$ . It computes and displays the solution.

8. Write short notes on any two of the following :

- (a) Software reuse
- (b) CASE
- (c) Software maintenance

9. (a) What is software quality? Discuss software quality attributes.

(b) Discuss the differences between object-oriented and function-oriented designs.

\*\*\*