2021

COMPUTER SCIENCE — HONOURS

Paper : CC-13

(Software Engineering)

Full Marks : 50

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Answer **question no. 1** and **any four** from the rest.

1. Answer **any five** questions :   2×5

   (a) Write the differences between an *open* and a *closed* system.

   (b) What do you understand by software fault?

   (c) What do you mean by the term 'V and V activities', and what is its role in the lifecycle of a software?

   (d) Why is unit testing performed on software?

   (e) What is context diagram?

   (f) Why is the low coupling desirable?

   (g) What is Logical DFD?

   (h) Write the functionality of a stub.

2. (a) What are the advantages of the Prototype Model? Regardless of its merits, why is it a costly model to emulate?

   (b) Discuss the Evolutionary Model in brief, along with its suitable domain of application.   (3+2)+5

3. (a) What is the role of an SRS? What are the components of a good SRS?

   (b) Discuss the different types of 'coupling' in detail.   (2+3)+5

4. (a) A software project of type Semi-detached comprises of 3750 KLOC. Compute the development effort using Basic COCOMO.

   (b) Describe the features of organic type of software as specified in COCOMO.

   (c) Write the advantages of decision tree in problem design.   4+3+3

Please Turn Over

5. (a) Why is Black Box testing also known as functional testing? How is it different from traditional White Box testing?

   (b) Design an equivalence class partitioning for a program that accepts as an input, an OTP of 6-digits, and considers all other types of inputs as invalid.

   (c) How is testing related to software quality? (1+2)+4+3

6. (a) Design a level-0 DFD and level-1 DFD for library management system.

   (b) Explain the functionality of physical DFD. 8+2

7. (a) Briefly discuss different Software Quality Assurance (SQA) activities in brief.

   (b) How are the terms 'reliability' and 'maintainability' related to software quality? 6+(2+2)

8. (a) Briefly discuss different stages of SDLC.

   (b) Define : Computer based systems engineering. 8+2