

**Total No. of printed pages = 7**

**63/2 (SEM-3) CSIT 3.2**

**2021**

**(held in 2022)**

**CSIT**

**(Theory Paper)**

**Paper Code : CSIT-3.2 (New)**

**(Software Engineering)**

**Full Marks – 80**

**Time – Three hours**

**The figures in the margin indicate full marks for the questions.**

- 1. Answer the following questions : 1×5=5**
- (i) Define software engineering.**
  - (ii) Define coupling.**
  - (iii) What is SRS ?**
  - (iv) Define software crisis.**
  - (v) Explain about software maintenance.**

**[Turn over**

2. Answer the following questions :  $2 \times 5 = 10$

(i) Write some challenges of software engineering.

(ii) What is meant by black-box testing ?

(iii) Discuss about software prototyping.

(iv) Explain Bottom-up design.

(v) Explain about DFD.

3. Answer any *five* questions from the following :  
 $5 \times 5 = 25$

(i) Draw the E-R diagram for library management system. Make your own assumption about the system.

(ii) Write some challenges of software engineering.

(iii) Explain software maintenance process.

(iv) Describe Gantt charts and PERT charts.

(v) Consider a project with the following functional units :

Number of user inputs = 50

Number of user outputs = 40

Number of user enquiries = 35

Number of user files = 06

Number of external interfaces = 04

Assume all complexity adjustment factors and weighting factors are average. Compute the function point for the project.

(vi) What do you mean by object oriented design ?

Answer any *four* questions from the following :

$10 \times 4 = 40$

4. Describe size estimation technique in software engineering.

5. Explain briefly characteristic of a good Software Requirement Specification (SRS).

6. Describe different types of coupling that can exist between two module.
7. Describe COCOMO.
8. Explain the waterfall model with some advantages and disadvantages.
9. Draw DFD upto level 2 for student Result Management System. Make your own assumption about the system.

(Theory Paper)

Paper Code : CSIT-3.2 (Old)

(Distributed System)

Full Marks – 80

Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Answer any *five* of the following questions :  
2×5=10
  - (a) Define distributed system.
  - (b) What are the advantages of distributed systems ?
  - (c) What are the different types of system model ?
  - (d) What is the multiprocessor and multicomputer system ?
  - (e) Why we need openness ?
  - (f) What is access point ?
  - (g) What are the two reasons of replication of data ?

2. Answer any *ten* of the following questions :

3×10=30

- (a) Explain Remote Procedure Call (RPC).
- (b) Elaborate persistence and transient communication.
- (c) Explain Logical Clock and Physical Clock.
- (d) Describe about the client server communication.
- (e) Illustrate the architectures for multi-threaded server.
- (f) Explain Names, Identifiers, and Addresses.
- (g) Differentiate between Weak mobility versus Strong mobility.
- (h) Differentiate between process and thread.
- (i) Explain the parameter passing approaches in distributed communication.
- (j) What is global state ? Explain in detail.
- (k) Define multicast communication.
- (l) Explain the failure models in brief.

3. Explain the various design goals for Distributed System with example. 10

4. What do you mean by Code migration ? Explain the Reasons for Migrating Code and also explain models of code migration. 10

5. Write in brief about Bully election algorithm. 10

Or

Explain Distributed commit approaches in brief. 10

6. Write short notes on any *two* : 5×2=10

- (a) Checkpointing
- (b) Middleware
- (c) The X-Window System (X).