Course Code : CST 315 **CXDW/RW – 18 / 5056**

Fifth Semester B. E. (Computer Science and Engineering) Examination

SOFTWARE ENGINEERING

Time : 3 Hours] [Max. Marks : 60

Instructions to Candidates :—

(1) All questions carry equal marks.
(2) **Question 3: Solve any two.**
(3) Due credit will be given to neatness and adequate dimensions.
(4) Assume suitable data wherever necessary.
(5) Illustrate your answers wherever necessary with the help of neat sketches.
(6) Mobile phones are prohibited in examination hall.

1. (a) Incremental model delivers a series releases, called ————. Fill this blank and discuss the drawbacks of RAD model. 4(CO 1)

(b) Justify the statement with example "Software is both a product and a vehicle that delivers a product". 2(CO 1)

(c) Why process is essential in software engineering ? Describe a software process framework with neat diagram. 4(CO 1)

OR

How do incremental process model differ from evolutionary process model? Describe the prototyping model clearly by highlighting its limitations. 4(CO 1)

2. (a) When should you use Waterfall over Scrum ? 3(CO 1)

(b) How do you deal when requirements change frequently ? 3(CO 1)

(c) List and explain the human factors focused by Agile Development models. 4(CO 1)

OR

Discuss the Scrum approach with appropriate example. 4(CO 1)

3. (a) Elaborate the term requirement engineering. Describe the requirement engineering process. 5(CO 2)

(b) Why elicitation of requirements is a difficult process ? Discuss the technique used for elicitation. 5(CO 2)

(c) Describe a hierarchy of macro elements that are themselves systems. 5(CO 2)

4. (a) Our college office requires software for monthly salary calculation. The software should provide following facilities :

- Managing staff information such as name, designation, basic salary, present days, leave record etc.
- Managing information about different allowances such as D.A,T.A, etc.
- Calculating monthly salary.
- Generating / printing salary slips / printing reports. Draw class and state chart diagram for the above discussed scenario. 10(CO 2)

OR

Illustrate the characteristics of good design. Explain any 5 design concepts in detail. 10(CO 2)

5. (a) Draw data flow graph for it and calculate cyclomatic complexity using all three methods.

```
insertion_procedure (int a[], int p [], int N)
{
  Int i,j,k;
```

Contd...

```
for ((2a)i = 0; (2b)i<=N;(2c)i++)
  p[i] = i;
for ((4a)i = 2; (4b)i <=N; (4c)i++)
{
  k = p[i] ; j = 1;
  while (a[p[j – 1]] > a[k])
  {
    p[j] = p[j – 1]
    j–
  }
  p[j] = k;
}
```

6(CO 3)

(b) Design a set of test cases that will ensure that all statements have been executed using basis path testing. 4(CO 3)

OR

"Debugging is a consequence of a successful testing". Describe the debugging process elaborating on common debugging tactics. 4(CO 3)

6. (a) Explain Review guidelines for conducting Formal Technical Review. 3(CO 4)

(b) A system has 14 external input, 26 external outputs, and fields 33 different external queries, manages 8 internal logical files, and interfaces with 6 different legacy systems. All of these data are of average complexity and $\Sigma F_i = 50$. Compute FP for the system. 3(CO 4)

(c) Elaborate on the attributes of effective software metric. Discuss the metric for source code and metrics for testing. 4(CO 4)

OR

Describe the Layers of SCM. 4(CO 4)