

Course Code : CST 315

EVFU/MW – 18 / 6056

**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 **Three** : 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) Enlighten the need of software engineering. Explain with example. 4 (CO 1)
- (b) "If we want to reduce software deterioration we will have to do —". Fill this blank and justify the statement. 2 (CO 1)
- (c) "When your customer has a legitimate need but is clueless about the details", Identify which model should be used and explain with the help of example. 4 (CO 1)

OR

List and discuss about three Artificial Intelligence Software. Explain why software engineering is required to build AI software. 4 (CO 1)

2. (a) List and explain various roles in Scrum. 3 (CO 1)
- (b) Classify the most important component of Agile. 3 (CO 1)
- (c) Differentiate between Agile and traditional project management. 4 (CO 1)

OR

Discuss Product backlog and Sprint Backlog with appropriate example. 4 (CO 1)

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Contd.

3. (a) Describe the importance of quality function deployment ? Enlist and discuss the three of requirement identified by QFD. 5 (CO 2)
- (b) Enlist and explain the set of communication principles. 5 (CO 2)
- (c) Select any large system or product with which you are familiar. Define the set of domains that describe the world view of the system. Describe the set of elements that make up one or two domains. For one element, identify the technical components that must be engineered. 5
4. (a) Consider an answering system for answering phone calls and recording messages from caller. It is intended as a personal answering system for a signal owner. It will support :
 - Modes for announce only and accepting caller messages
 - Ability to review caller messages
 - Personalized greetings
 - Local management of modes, greetings and caller messages.

Draw use – case and activity diagram for the above discussed scenario.
10 (CO 2)

OR

Explain the role of Abstraction, Architecture, Modularity information Hiding and Refinement with respect to design. 10 (CO 2)

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

```

public int binary Search (int sorted Array[], int search Value)
{
    int bottom = 0;
    int top = sorted Array length - 1;
    int middle, location Of search Value;
    boolean found = flase;
    location Ofsearch Value = -1;
    /* the location of search Value in the sorted Array */
    /* location = -1 means that search Value is not found */

```

```

while (bottom <= top && !found)
{
    middle = (top + bottom) /2 ;
    if (search Value == sorted Array [middle])
    { found = true ;
      location Ofsearch Value = middle ;
    }
    else if (search Value < sorted Array [middle ])
    top = middle - 1 ;
    else
    bottom = middle + 1 ;
} // end while
return locationOfsearch Value ;
}

```

6 (CO 3)

- (b) How can you derive test – cases by using the Black – box testing method of "Equivalence Partitioning ?" Justify with examples. 4 (CO 3)

OR

Elaborate on the attributes of effective software metric. Discuss the metric for source code and metrics for testing. 4 (CO 3)

6. (a) Suppose you are a project manager for a major software company and asked to lead team that's developing "next generation" word–processing software. Identify the type of risk that can be encountered as software is built. 3 (CO 4)
- (b) A system has 10 external inputs, 34 external outputs, and fields 20 different external queries, manages 8 internal logical files, and interfaces with 2 different legacy systems. All of these data area of average complexity and $\sum F_i = 42$. Computer FP for the system. 3 (CO 4)
- (c) Write short notes on any **Two** of the following :—
- (i) Change management
 - (ii) Reactive and proactive risk strategies
 - (iii) Formal Technical Review. 4 (CO 4)