Course Code : CST 357 **QVRU/RS – 22 / 1012**

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

SOFTWARE ENGINEERING

Time : 2 Hours] [Max. Marks : 40

Instructions to Candidates :—

(1) All questions carry marks as indicated against them.
(2) Due credit will be given to neatness and adequate dimensions.
(3) Assume suitable data and illustrate answers with neat sketches wherever necessary.

1. (a) "Software Engineering is a layered technology". Justify the statement in the light of IEEE definition of software engineering. 3(CO1)

   (b) Explain Quality Function Deployment. How it maximizes the customer satisfaction ? 4(CO1)

2. (a) Describe the evolutionary model proposed by Barry Bohem. Explain how this model embeds prototyping and classic life cycle. 3(CO2)

   (b) Explain scrum model and illustrate in detail. How is it used to solve the problem of blood bank management ? Here donor request, person's details, emergency status, information regarding donor, blood requirement, updates of requirement satisfaction and rejection, further searches and records update are analysed. 4(CO2)

3. (a) Conclude your understanding to explain the steps for top-down integration testing and bottom up integration testing with example. 3(CO3)

   (b) For the following program block,

      (i) Construct the flow graph.

      (ii) Determine the cyclomatic complexity using all three methods.

(iii) Determine all independent paths.

```
Procedure Validate_Pin (Valid_Pin, Return_Code)
Valid_Pin = FALSE
Return_Code = GOOD
Pin_Count = 0
do until Valid_Pin = TRUE or Pin_Count > 2 or
      Return_Code = CANCEL
begin
     get Pin_Number (Pin_Number, Return_Code)
if (Return_Code ≠ CANCEL)
  begin
  call Validate Pin_Number (Pin_Number, Valid_Pin)
   if (Valid_Pin = FALSE) then
        begin
        output "Invalid PIN, please re-enter PIN"
        Pin_Count = Pin_Count + 1
         end
       end
end
return (Valid_Pin, Return_Code)
```

4(CO3)

4. (a) Explain the significance of McCall's quality factors. Elaborate on product revision factors. 2(CO3)

(b) Example : Compute the function point, productivity, documentation, cost per function for the following data :

(i) Number of user inputs = 24

(ii) Number of user outputs = 46

(iii) Number of inquiries = 8

(iv) Number of files = 4

(v) Number of external interfaces = 2

(vi) Effort = 36.9 p-m

(vii) Technical documents = 265 pages

(viii) User documents = 122 pages

(ix) Cost = $7744 / month

Various processing complexity factors are :
4, 1, 0, 3, 3, 5, 4, 4, 3, 3, 2, 2, 4, 5. 5(CO3)

5. (a) Giving your understanding on project evaluation, explain its objectives. 3(CO4)

(b) Describe the relationship between people and effort. 3(CO4)

6. (a) Summarize your understanding on software re-engineering model with diagram. 4(CO4)

(b) During project management, risk is refined into a set of more detailed risks using risk refinement, why ? 2(CO4)