(2 ½ Hours) **[Total Marks: 75]**

N.B: (1) All questions are compulsory.
(2) Figures to the right indicate marks.
(3) Illustrations, in-depth answers and diagrams will be appreciated.
(4) Mixing of sub-questions is not allowed.

Q1. **Attempt the following (any THREE):** **(15M)**

(A) Define software. Explain any four characteristics of software.
(B) Discuss SDLC and its phases.
(C) What is software engineering? Give its principles.
(D) Explain the prototyping model in detail with the help of a diagram. State its advantages and also its limitations.
(E) List different myths about software.
(F) Give the meaning of software engineering process. List its characteristics.

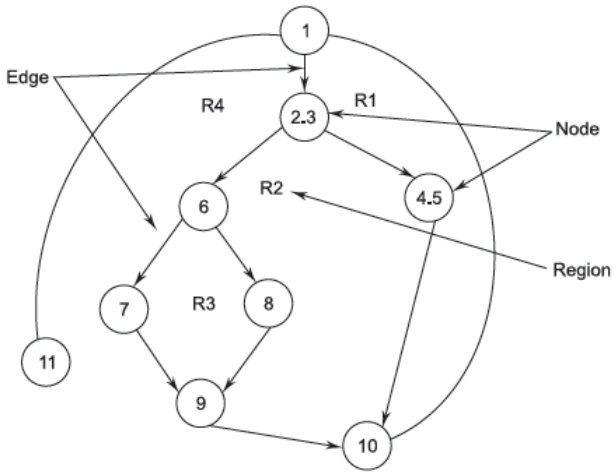
Q2. **Attempt the following (any THREE):** **(15M)**

(A) Discuss Requirements Elicitation and Analysis Process Model
(B) What is Software Quality Assurance? Give its process and goals.
(C) What are the characteristics of a good SRS document? Explain.
(D) Discuss the following:-
  i) Verification ,Validation and its goal
  ii) Two techniques of system checking
(E) Explain Data Flow diagrams and its symbols with example.
(F) Define software quality. Explain two different classifications of software-related qualities.

Q3. **Attempt the following (any THREE):** **(15M)**

(A) What is system design? Explain its three principles.
(B) Explain: (*a*) Product metrics (*b*) Process metrics (*c*) Project metrics
(C) Define architectural design. What are the objectives of architectural design?
(D) What are the main principles of testing?
(E) Explain black box testing and its categories.

(F) A set of independent paths for the flow graph is given in the following figure:-



Calculate Cyclomatic complexity.

Q4. Attempt the following (any THREE): (15M)

(A) Define the term "debugging." List debugging techniques. Explain any three.
(B) What is CASE? Explain different categories of CASE tools.
(C) Write a note on Reverse Engineering and its purpose.
(D) Discuss about structured programming.
(E) Define static testing. Explain any two strategies of it.
(F) Write in brief about 4th generation techniques.

Q5. Attempt the following (any THREE): (15M)

(A) Write a note on Spiral model.
(B) What is ISO? Discuss ISO certification.
(C) Discuss levels of testing.
(D) Explain various programming styles.
(E) When to use decision tables? Explain with example.
(F) What is test case design? Explain its format.

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