

(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):** (15)
- (A) What are the different myths and realities about software?
 - (B) Give the various application areas of software.
 - (C) Discuss the characteristics of software.
 - (D) Give the basic phases in the software-development life-cycle.
 - (E) Explain the waterfall model in detail with the help of a diagram. State its advantages and also its limitations.
 - (F) What are the major advantages of first constructing a working prototype before developing the actual product?
- Q2. Attempt the following (any THREE):** (15)
- (A) What is requirements elicitation? Discuss any two techniques in detail.
 - (B) Define:
 - (i) Data-flow diagram
 - (ii) Decision table
 - (C) Draw the E-R diagram for a hotel reception desk management.
 - (D) What is software quality assurance?
 - (E) Briefly explain principles of Agile development.
 - (F) Explain, in detail, the SEI-CMM model.
- Q3. Attempt the following (any THREE):** (15)
- (A) Discuss the term verification in reference to system design.
 - (B) Compute the function-point value for a project with the following Information-domain characteristics.
 - Number of user Inputs: 32
 - Number of User output: 60
 - Number of User Inquiries: 24
 - Number of files: 8
 - Number of external interface: 2Assume that all complexity adjustment values are average.
 - (C) Define architectural design. What are the objectives of architectural design?
 - (D) Define:
 - (a) Product metrics
 - (b) Process metrics
 - (c) Project metrics
 - (E) Define the various principles of testing.
 - (F) What is the difference between black-box testing and white-box testing?

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Q4. Attempt the following (any THREE):

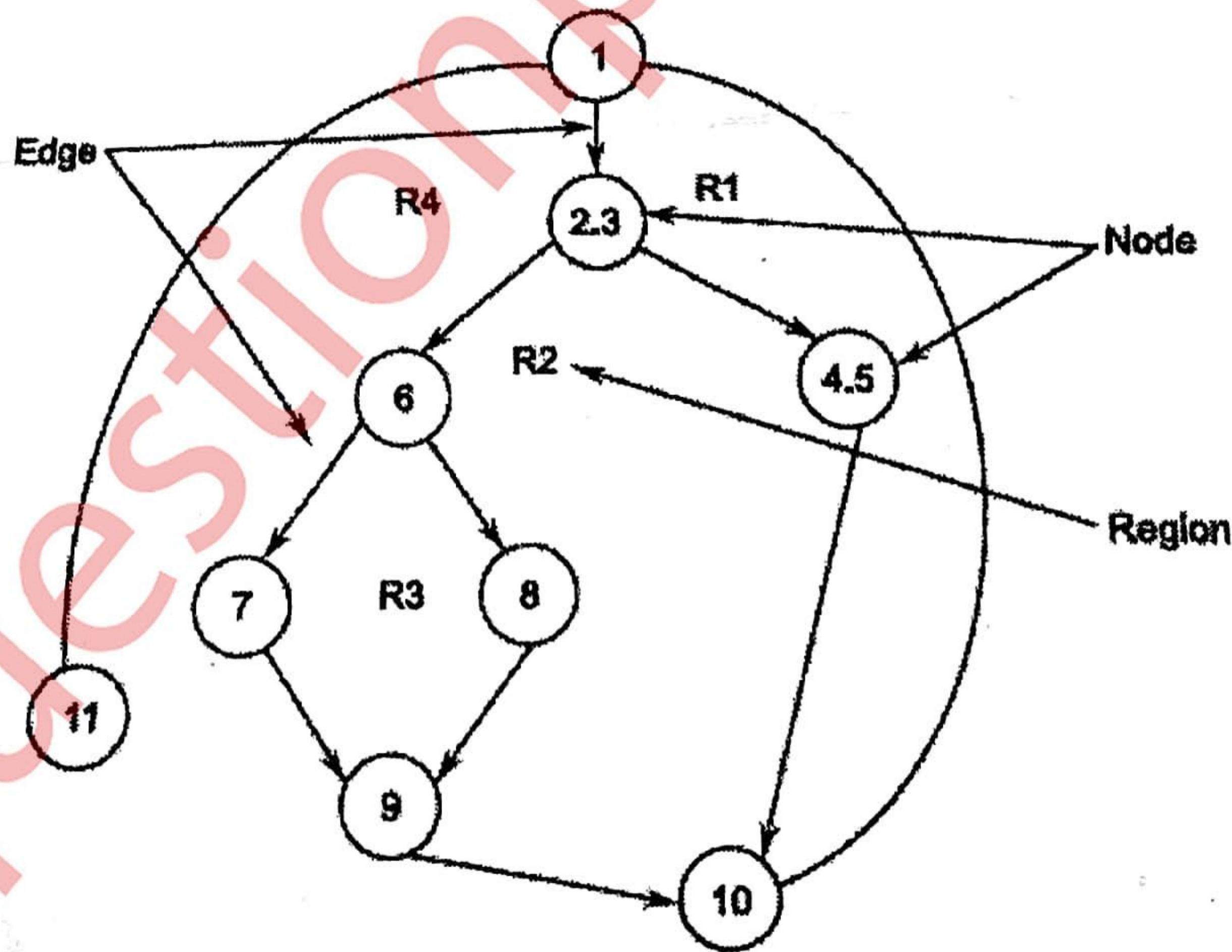
- (A) Explain in brief the various static testing strategies.
- (B) Explain Computer-Aided Software Engineering (CASE) and the various types of CASE tools.
- (C) Define reverse engineering. Discuss the levels of reverse engineering.
- (D) Describe the various programming styles in software engineering.
- (E) What are the advantages of writing structured programs versus unstructured programs?
- (F) Explain Terms Error, Fault, Failure, Bug, and Crash. Explain how they are related with each other.

(15)

Q5. Attempt the following (any THREE):

- (A) What is a software crisis? Explain the problems of a software crisis.
- (B) Write a short description of the evolutionary development model. Also state its advantages.
- (C) What is an SRS? What are the components of an SRS?
- (D) What is a DFD? Explain some of the symbols used to draw a DFD.
- (E) A set of independent paths for the flow graph illustrated in Figure is

(15)



Compute Cyclomatic complexity.

- (F) What is a fourth-generation language? How does it differ from a third-generation language?