NOTE:

1. **Answer question 1 and any FOUR from questions 2 to 7.**
2. **Parts of the same question should be answered together and in the same sequence.**

Time: 3 Hours **Total Marks: 100**

1.

a) Explain the difference between software process and a software process model.
b) List the flow symbols used in Data-Flow diagrams.
c) What do you mean by the term “cohesion” and “coupling” of Software models?
d) Describe the principles of software design and define criteria for Good design?
e) What is Delphi model of cost estimation?
f) Which of the supports should we expect from a CASE tool during the code generation phase of a software development project?
g) How does software engineer deal with complexity in large projects?

(7x4)

2.

a) List and explain the various phases involved in the Iterative Waterfall model.
b) Write a SRS for an Airline reservation system.
c) Explain the prototype paradigm of process models.

(6+8+4)

3.

a) What is change management? Explain Data conversion and its necessities.
b) What are the strategic options for legacy system evolution? When would you normally replace all or part of a system rather than continue maintenance of the software?
c) Describe Software Reliability and explain the difficulties to measure it?

(6+6+6)

4.

a) What are software metrics? What is the role of metrics in project and process management?
b) Explain in detail about any four architectural style.
c) List the various Halstead Metrics. Consider the following ‘C’ program. Calculate the Halstead’s length and volume measures:

```
void (*bar)(int)
void baz(int j){return}
void (*t[2]) (int)={baz,0};

void foo(int k) {
        int i=0;
        return;
        }
int main(){
        int j=8;
        void(*{*pt})(int)=&t;
        if(!j){
                return(1);
        }
        else{
                bar=foo;
                bar(1);
                returns 0;
        }  }
```

(6+6+6)

5.

a) What do you mean by software Quality? Discuss factors that affect software quality.

b) What is user acceptance testing? Explain different testing techniques in user acceptance testing. Why is it necessary?

c) Define process maturity? Explain CMM activities required to measure process maturity.

(6+6+6)

6.

a) Describe the role of Version Control in successful completion of project:

b) Discuss Function Point Analysis. Briefly explain all major components of Function Points method.

c) Explain the Software Spiral Model. Give the conditions when this model need be used.

(6+6+6)

7.

a) Describe the differences between software debugging and testing.

b) Explain the concept of domain analysis. Bring out its utility.

c) List the top six software project risks and briefly outline the strategies for reducing each of the risk.

(6+6+6)