Reg No.										

MANIPAL INSTITUTE OF TECHNOLOGY
(Constituent Institute of Manipal University)
MANIPAL-576104

FIFTH SEMESTER B.E(CSE 303)
End Semester Examination
Software Engineering
January 2010

Time : 3 Hours MAX. MARKS : 50

Instructions to Candidates

1. Answer any 5 full questions
2. Answer should be clear and concise in point form
3. Missing data can be suitably assumed

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1. Which life cycle model would you follow for developing software for the following applications? Mention the reasons behind your choice for the particular life cycle model? (10 marks)

(a) Well-understood data processing application
(b)A new software product that would connect computers through satellite communication. Assume that team has no previous experience in developing the satellite communication software.
(c)A software Product that would function as the controller of a telephone switching system.
(d) A new library automation software that would link various libraries in the city.
(e) A new text editor.

2)a)Assume that the size of an organic type software product has been estimated to be 32,000 lines of source code. Assume that the average salary of the software developers is Rs 15,000 per month. Determine the effort required to develop the software product, the nominal development time and the cost to develop the product using COCOMO(5 marks)
b) State whether TRUE or FALSE **with Reasons for your choice** (5 marks)
(i)As a project manager it would be worthwhile on your part to reduce the project duration by half provided the customer agrees to pay for the increased manpower requirements.
(ii)A democratic team structure is most suitable for developing a very large software product.

P.T.O.

3)a)Represent the decision making involved in the operation of the following wash-machine by means of a decision table: The machine waits for the start switch to be pressed. After the user presses the start switch, the machine fills the wash tub with either hot or cold water depending upon the setting of the HotWash switch. The water filling continues until the high level is sensed. The machine starts the agitation motor and continues agitating the wash tub until either the preset timer expires or the user presses the stop switch. After the agitation stops, the machine waits for the user to press the startDrying switch. After the user presses the startDrying switch, the machine starts the hot air blower and continues blowing hot air into the drying chamber until either the user presses the stop switch or the preset timer expires.

(8 marks)

b)What do you mean by balancing a DFD? Illustrate your answer with a suitable example? (2 marks)

4a)Identify different types of coupling in the following program (Note:-You need to explain type of coupling along with its occurrence).

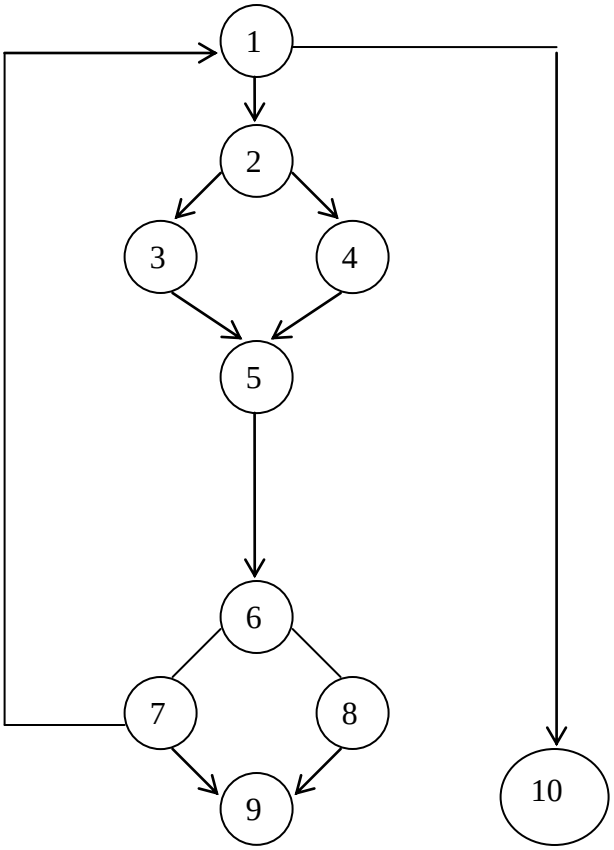
(4 marks)

```
int  a[10]={1,2,3,4,5,6,7,8,9,10},b=7;
int c(int d, int e);
int main()
{
    int f=0;
   for(int i=0;i<10;i++)
    f=f+c(a[i],b);
    cout<<f;
    return 0;
 }
c(int d, int e)
 {
    return (d+e);
  }
```

b)Explain with example different data definition operators. (6 marks)

5) a) Calculate the McCabe's Cyclomatic Complexity Metric for the CFG given below using all the three methods. Explain the various terminologies used. (3 marks)

P.T.O



CFG

b) Describe Code walk-through and code inspection. (3 marks)
c) State and explain all the types of performance testing. (4 marks)

6) a) Give the different levels of CMM and their key process areas. (4 marks)
b) Using coding standards and guidelines, write a highly cohesive program to find whether an year is a leap year. (3 marks)
c)Explain various stages in the registration process of the ISO 9000 certification(3 marks)