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

FIFTH SEMESTER B.TECH. (CSE 305)
MAKE UP EXAMINATION – JANUARY 2014
SUBJECT: SOFTWARE ENGINEEERING
5-1-2014

TIME: 3 HOURS   MAX.MARKS: 50

Instructions to Candidates
- Answer any 5 full questions.

1A. What are the broad categories of computer software? Explain any 6 main categories
1B. Draw the system process framework diagram and describe briefly.
1C. What is the major difference between Incremental process model and Evolutionary process model?
1D. Give two important reasons where a Prototyping model can fail? (3+3+2+2)

2A. With a neat diagram explain Feature Driven Development(FDD) Agile process model.
2B. Explain any six principles that apply equally to all forms of communication that occur within a software project.
2C. Explain the different views of the System engineering hierarchy and the composition of each view.
2D.Give an example of an Use case template for Library management system. (3+3+2+2)

3A. Describe the problems that help us understand why requirements elicitation is difficult.
3B. The following is an Internet Banking System:
An account holder of State Bank of India registers online with his choice of Username and password to obtain an online account. He is allowed to make purchases from a list of online sites. He adds items to his cart on placing orders from any of these sites. Each order is given an order id and he makes payment for the order using his online account. Each order has a shipping charge of 2% and tax of 5%. This type of purchase is termed Online purchase. The user can make transactions such as Utility Bill transaction, Electronic Fund Transfer Transaction & Balance enquiry transaction.
Draw the complete Class diagram showing the multiplicities, relationships between classes and the attributes and properties of all classes.
3C. Explain the quality attributes FURPS which is a target for all software design. (2+5+3)

4A. Give the definitions of Information hiding and functional independence as applied to design engineering.

4B. Describe the different approaches to software sizing as applied to software project estimation.

4C. Create an example of a typical decision tree showing build, reuse, buy and contract decisions. Calculate the expected cost for each path(decision). (2+4+4)

5A. Describe any 3 quality factors suggested by McCall.

5B. What are the levels of CMMI? Describe briefly.

5C. Consider the PERT chart of the MIS problem given in Figure 5C. Draw the corresponding Gantt chart giving the time units properly. Note: The figures given in the PERT chart are the time units taken to complete the corresponding activity.

Figure 5C   PERT Chart of the MIS Problem
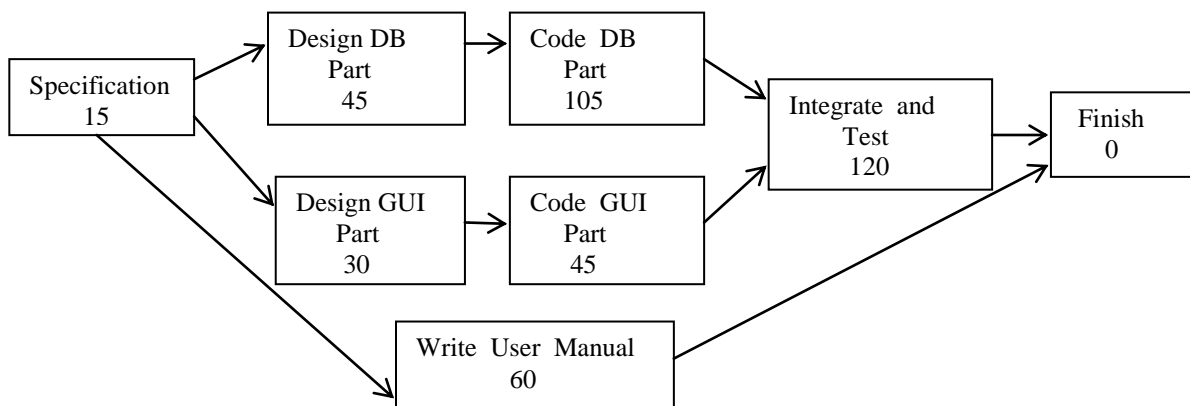
(3+4+3)

6A. Draw the Control flow graph and calculate the Cyclomatic Complexity for the following code snippet by suitably numbering the statements:

```
void selection(int a[ ], int n){
  int i, temp;
  for(i=0;i<n-1;i++){
      for(j=i+1;j<n;j++){
        if(a[i]<a[j]){
              temp=a[i];
              a[i]=a[j];
              a[j]=temp;
        }
      }
  }
  printf("The array is sorted");
}
```

6B. Explain the classification of test techniques based on the source of information used to derive test cases.

6C. Describe the steps in risk management of a software project at the project planning stage. (5+3+2)