MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL (A constituent unit of MAHE, Manipal)

V SEMESTER B.TECH. (CSE) DEGREE END SEMESTER EXAMINATION-NOV/DEC 2018 SUBJECT: SOFTWARE ENGINEERING [CSE 3104] REVISED CREDIT SYSTEM (23 /11 /2018)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

✤ Answer ALL the questions.

✤ Missing data may be suitably assumed.

- 1A. What do you mean by abstraction and decomposition in software 3M engineering discipline? Explain with an example.
- 1B. With a neat sketch, explain the various functionalities of Iterative waterfall 3M model?
- 1C. Consider Library Membership Automation Software (LMS), where, it 4M should support the following three options:

(i) New member (ii) Renewal (iii) Cancel membership

(i) New member: When the 'new member' option is selected, the software asks details about the member like the member's name, address, phone number etc. Action: If proper information is entered then a membership record for the member is created and a bill is printed for the annual membership charge plus the security deposit payable.

(ii) Renewal: If the 'renewal' option is chosen, the LMS asks for the member's name and his membership number to check whether he is a valid member or not. Action: If the membership is valid then membership expiry date is updated and the annual membership bill is printed, otherwise an error message is displayed.

(iii) Cancel membership: If the 'cancel membership' option is selected, then the software asks for member's name and his membership number. Action: The membership is cancelled, a cheque for the balance amount due to the member is printed and finally the membership record is deleted from the database.

(a) What is Decision Tree? Write Decision Tree for the above LMS problem. (b) What is Decision Table? Write Decision Table for the above LMS problem

- 2A. Write down the need for software requirement specification. Explain the properties of a good SRS document?
- 2B. Mention any six examples of bad SRS Document. 3M
- 2C. Explain any five types of cohesiveness design principle in detail. 5M

3A. Consider the following scenario related to a "University Management 4M System": A student can submit assignments, the teacher assign marks/grades to those assignments, then record and uploads the grades which include the saving of grades. The teacher, administrator and students are allowed to view the grades through logon function; Student's guardian can also view the grades, an administrator can print the grade sheets and teacher can distribute the grade sheets to the students electronically. (i) Identify the actors, use cases and use case relationships. (ii) Write use case diagram and describe working of use case diagram 3B. Use the Unified Modelling Language standard notations to write the 3M following class diagram relationships with suitable examples. (i) Multiplicity of associations (ii) Generalization (iii) Composition and aggregation 3C. Write the X-window architecture and briefly explain (i) X- Server 3M (ii) X-Protocol (iii) X-Library. 4A. Explain the types of reviews that are carried out on the code of a module. 3M Explain the different white box testing strategies. 4B. 2M 4C. Draw the control flow graph for the following code snippet and calculate the 5M cyclomatic complexity for the same using all the three methods. 1 void bubble(int a[], int z[], int n){ 2 int i,j, temp; 3 for(i=0; i<n/2; i++) { 4 a[i] = 4*i; z[i] = 2*i;5 } 6 for(i=n/2; i<n; i++) { 7 a[i]=2*i; z[i] = i;8 } 9 for(i = 0; i < n-1; i++) { 10 for(j=0; j<n-i-1; j++){ if(a[i] == 4){ 11 12 $if(a[j] > a[j+1]) \{$ 13 temp=a[j]; 14 a[i] = a[i + 1];15 a[j+1] =temp; 16 } 17 else{ a[j] = a[j+1]; 18 19 } 20 } 21 else { 22 a[i] = a[i-1];23 } 24 } 25 } 26 }

5A. Briefly explain any five short comings of the Lines of Code matric. 5M

- 5B. What are the three project estimation techniques? Briefly explain any one of 2M project estimation techniques.
- 5C. Briefly explain activity on node and activity on edge. Write activity network 3M representation for MIS problem.