Reg. No.									

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

VII SEMESTER B.TECH.

(INFORMATION TECHNOLOGY/COMPUTER AND COMMUNICATION ENGINEERING)

MAKEUP EXAMINATIONS, DEC 2017/JAN 2018

SUBJECT: PROGRAM ELECTIVE V

SOFTWARE PROJECT & QUALITY MANAGEMENT [ICT 4015]

REVISED CREDIT SYSTEM

(30/12/2017)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data, if any, may be suitably assumed.

1A. Why is defect prevention crucial to the software process? What are the different steps of software defect prevention? **5**

1B. What are the different types of software review? **3**

1C. What are the factors affecting development process parameters (especially their magnitude) in a software quality management? **2**

2A. Consider a system built in C application which will have 3 screens and will produce 1 report:

– A booking screen: records a new sale booking
Needs 3 data tables (customer info, customer history table, available seats).Only 1 view of the screen is enough. So, the booking screen is classified as simple and its weight is 1.

– A pricing screen: shows the rate for each day and each flight.
The levels of difficulty of the pricing screen is classified as simple with weight=1

– An availability screen: shows available flights
The levels of difficulty of the availability screen is classified as medium with weight=2

– A sales report: shows total sale figures for the month and year and compares figures with previous months and years
The levels of difficulty of the sales report is classified as medium with weight=5

There is no 3GL component. Assessment of the developers and the environment shows:

– The developers' experience is very low (4)
– The CASE tool is low (7).

Find the productivity rate for the system. Find the required effort of the project according to COCOMO II. **5**

2B. With a neat diagram illustrate the software fault tolerance technique with recovery blocks. **3**

2C. With a suitable example differentiate between functional and structural quality. **2**

3A. Explain the importance software quality development standards. With a neat diagram explain the simplistic approach of the software development standard. **5**

3B. Write the formula of Defect removal efficiency (DRE).Suppose total number of defects logged is 500 out of which 20 were found after delivery and 200 were found during system testing. Find DRE of system testing .Also find DRE of the overall quality process **3**

3C. What are the characteristics of five stages of the maturity level? **2**

4A For the following snippet calculate the given halstead metric:

i. the length of the program
ii. the difficulty of the program
iii. the effort required to write the program

```
int f=1, n=7;
for (int i=1; i<=n; i+=1)
f =i+7;
```

5

4B. List the major Software quality Assurance tasks in the software life cycle. **3**

4C. Write a brief note on stakeholders who are involved in risk management. **2**

5A. The ISO 9241-11 standard defines usability as "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use". Justify this statement **5**

5B. Explain briefly the five basic parameters of the software cost model. **3**

5C. How are projects different from standard business operational activities? **2**