Everest Engineering College
Time -Bound Open Book Hybrid Examination

Level: Bachelor	Semester: Spring, 2020	Full Marks: 70
Program: BE Computer		Pass Marks: 31.5
Course: Object Oriented Software Engineering		Time: 2 hrs.

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt all the questions.

1. Define Software Engineering and its role over the system design. Describe the relationship of Software Engineering with other computer science areas. **10**
2. The ABC Manufacturing company is going to develop software applications. They are working on traditional system. Which of the process model would be adopt for development of application for manufacturing company? Justify your choice, implementation plan as well as advantages and challenges. **10**
3. Explain the COCOMO model in cost estimation of the software with example. Suppose that a project was estimated to be 400 KLOC. Calculate the effort and development time for organic, semidetached and embedded. **10**
   The constant values a, b, c and d for the Basic Model for the different categories of system is:

SOFTWARE PROJECTS	A	B	C	D
Organic	2.4	1.05	2.5	0.38
Semi Detached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

4. Obtain DFD for the following Mess Management System. **10**
   A hostel has 500 rooms and 4 messes. Currently, there are 1000 students in all in 2 seated rooms. They eat in any of the messes but can get rebate if they inform and do not eat for at least 4 consecutive days. Besides normal menu, extras items are also given to students when the ask for it. Such extras are entered in an extra book. At the end of the month a bill is prepared based on the normal daily rate and extras and given to each student. System for stores issue and control is maintained for daily used of perishable and non-perishable items and order to vendor and supplies are also maintained as well.
5. A health clinic provides medical services to patients in a small town. Five doctors and three nurses work at the clinic; they consult with patients, prescribe medicines **10**

and carry out minor medical treatments. Patients with more serious conditions are referred to specialists at the local hospitals. A medical information system is being designed for use in the clinic. The system will manage information about employees (doctors, nurses, and administrator), patients and their contact details, appointments and consultations, medicines and prescriptions, treatments given, and referrals.

Produce a UML class diagram for use in constructing the system using an object-oriented programming language. Your diagram must include all applicable classes and relationship.

6. Define software review and explain why it is needed? Also describe how and when formal technical review can be helpful for maintaining quality of software project with an example of your own project? **20**