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**S.Y.B.C.A, SEM IV, END SEMESTER EXAMINATION, APRIL 2019**  
**SOFTWARE ENGINEERING (BCA-401)**

Duration: 2 Hours

Total Marks: 50

**Instructions:** 1) All Questions are **Compulsory**.  
2) Figures to the right indicate maximum marks.  
3) Start each new question on a fresh page.  
4) Write assumptions wherever required & Support your answers with relevant diagrams.

**Q.1 Answer the following questions:**

**2 X 5 = 10 Marks**

- i) Dual role of a software.
- ii) Define functional and non-functional requirements.
- iii) Write two disadvantages of Waterfall model.
- iv) State two purposes of State chart diagram.
- v) State two importance of Software Requirement Specification (SRS).

**Q2) Answer the following questions:**

**(10 Marks)**

- A) Explain any two challenges of software engineering. **2 Marks**
- B) Explain Technical and Legal/Ethical Feasibility study. **3 Marks**
- C) Explain the different phases of Unified process model with diagram. **5 Marks**

**Q3) Answer the following questions:**

**(10 Marks)**

- A) State the characteristics of software. **2 Marks**
- B) In a sequence diagram, explain the alt and opt combined fragments with its notations. **3 Marks**
- C) Draw Usecase diagram for the following Canteen system: **5 Marks**

The objective of the canteen system is to automate all the activities of the canteen right from purchasing and to maintaining the kitchen. The system should maintain a detailed account of all provisions bought and food served at the canteen. Several inquiry facilities should also be provided to view expenses incurred, planned menus/cash payment. In short following are the list of facilities which should be provided with the system: list of items served with rates, daily menu preparation, daily transactions, availability of information on intranet for reports and inquiries, purchases and issues.

**Q4) Answer the following questions:****(10 Marks)**

- 1) Explain the different types of messages used in a sequence diagram. **2 Marks**
- 2) Define and give the graphical notation for State, Action and Transition with respect to State chart diagram. **3 Marks**
- 3) Draw Class diagram for the following system: **5 Marks**

Course ware management system can be used to manage courses and classes for an organization that specialize in providing training. The organization offers a variety of courses. Each course is made up of set of topics. Tutors in the organization are assigned courses to teach according to the area that is specialized in and their availability. The organization publishes and maintains a calendar of different courses and assign tutors. There is a group of Course Administrator in the organization to manage the courses including course content, assign courses to tutor and define the course schedule. The training organization aim to use the Course-ware Management System to get a better control and visibility to the management of courses as also to streamline the process of generating and managing the schedule of the different courses.

**Q5) Answer the following questions:****(10 Marks)**

- 1) What are the benefits of using Gantt chart? **2 Marks**
- 2) Draw Activity diagram for the following: **3 Marks**

The purchasing department handles purchase requests from other departments in the company. People in the company who initiate the original purchase request are the "customers" of the purchasing department. A case worker within the purchasing department receives that request and monitors it until it is ordered and received. Case workers process the requests for purchasing products under \$1,500, write a purchase order, and then send it to the approved vendor. Purchase requests over \$1,500 must first be sent out for a bid from the vendor that supplies the product. When the bids return, the case worker selects one bid. Then, the case worker writes a purchase order and sends it to the approved vendor.

- 3) Explain the different phases of Requirement Engineering Process. **5 Marks**