

Part - B

Department: CSE

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Examination: Semester
Final

Student No: 18.01.04.072

Program: B.Sc. in CSE

Course Title: Information
System Design and
Software Engineering

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Signature and Date:

Rakib, 1 November, 2021

Ans. to the que. No: 4

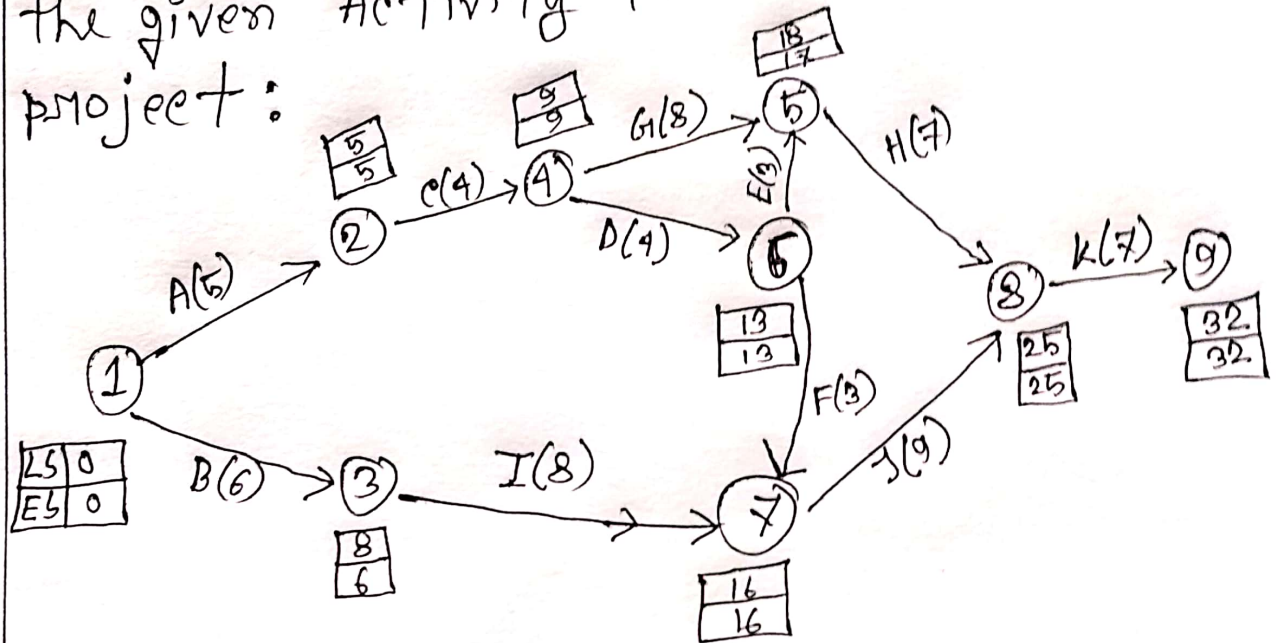
(a)
PERT and CPM are two techniques of project management.

CPM stands for Critical Path Method.
PERT stands for Project Evaluation and Review Techniques.

PERT: PERT is the technique of project management which is used to manage uncertain time of activities in the project. Estimated time isn't fixed here. Measure the time using optimistic, most likely and pessimistic way.

CPM: CPM is the technique of project management which is used to manage only certain time of activities of project. Estimated time is fixed here.

(b)
Following is the CPM Network according to the given Activity table for E-commerce project:



$$LC_i = \min_j (LC_j - D_{ij})$$

$$ES_i = \max_j (ES_j + D_{ij})$$

critical path of the network = $1 \rightarrow 2 \rightarrow 4 \rightarrow 6 \rightarrow 7 \rightarrow 8$

$$= A \rightarrow C \rightarrow D \rightarrow F \rightarrow J \rightarrow K$$

$$= 5 + 4 + 4 + 3 + 9 + 7$$

$$= 32$$

\therefore critical path is $A \rightarrow C \rightarrow D \rightarrow F \rightarrow J \rightarrow K$ and total duration is 32 weeks.

Ans. to the que. No: 5

(a)

DFD:

A DFD or Data Flow Diagram is a diagram that maps out the flow of information for any process or system. It is a way of representing flow of data through a process or a system. DFD also provides information about the outputs and inputs of each entity and the process itself. DFD is mainly drawn for the developer and more specifically for the database system designer. They will get information required to design the database and the system. They can understand the flow of data and required data storage of the system. They can design the system and the database according to the Data Flow Diagram.

(b)

Use case narratives:

A use case narrative is a largely text-based description of a use case. In software engineering, a use case is a list of actions or event steps which defines the interaction between a role or an ~~action~~ actor and a system to achieve a goal. Use case narratives contain the description of each of these use cases. Use case narratives follow a structured format typically using a numbered sequence of steps for that main activity accompanied by preconditions, postconditions, alternative paths etc.

CRC:

A CRC or class Responsibility collaborator is a collection of standard index cards that have been divided into 3 sections as follows:

class Name	
Responsibilities	collaboration

A CRC card is a physical card representing a single class. CRC cards can be used during analysis and design while classes are being discovered in order to keep track of them.

PSPEC:

PSPEC or The process Specification is used to describe all flow model process that appear at the final level of refinement. The contents of the process specification can include narrative text, a program design language (PDL), description of the process algorithm, mathematical equations, tables or UML diagram. By providing a PSPEC to accompany each bubble in the flow model, one can create a mini-spec that serves as a guide for design of the software component that will implement the bubble.

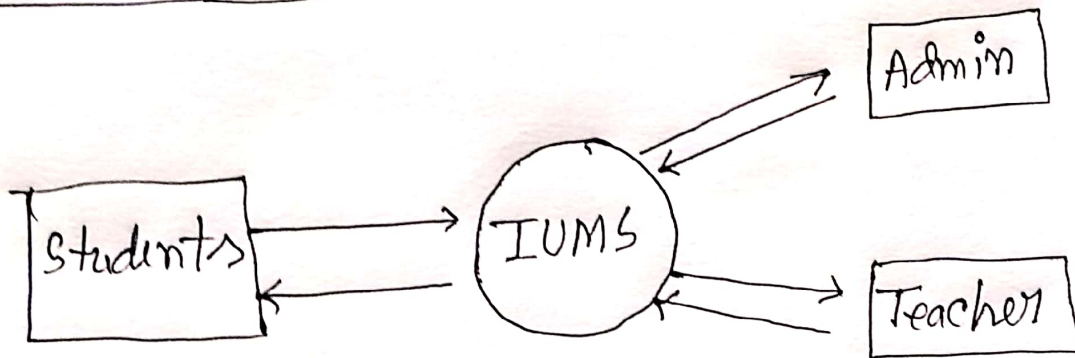
CSPEC:

CSPEC for A control Specification represents the behaviour of the system in two different ways. It contains a state diagram that is a sequential specification of behavior. It can also contain

a program activation cycle - a combinatorial specification of behavior.

(c)

The context level Diagram and the level-1 Data Flow Diagram of IUMS is the following:
context level Diagram or level-0 Diagram:



P.T.O

Level-1 Diagram:

