Part B

Department : CSE

Program : B.Sc. in CSE

Course No. : CSE-3223

Course Title : Information System Design and Software Engineering

Examination : Semester Final

Semester (Session) : Fall-2020

Student No. : 18.01.04.129

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Ans. to the Ques. No. 4

(a)

(Program Evaluation and Review Technique)

PERT: A PERT Chart or PERT Diagram, is a project management tool used to schedule, organize and coordinate tasks within a project. It provides a graphical representation of a projects timeline that allows project managers to break down each individual task in the project for analysis.

CPM: The Critical Path Method is an algorithm for scheduling a set of project activities. It is commonly used in conjuction with the PERT diagram. A critical path is determined by identifying the longest stretch of dependent activities and measuring

the time required to complete them from start to finish.

(b) Activity ^ Project for E-commerce Table

Project:

Activity	Predecessors	Duration in Weeks
A	–	5
B	–	6
C	A	4
D	C	4
E	D	3
F	D	3
G	C	8
H	E, G	7
I	B	8
J	F, I	9
K	H, J	7

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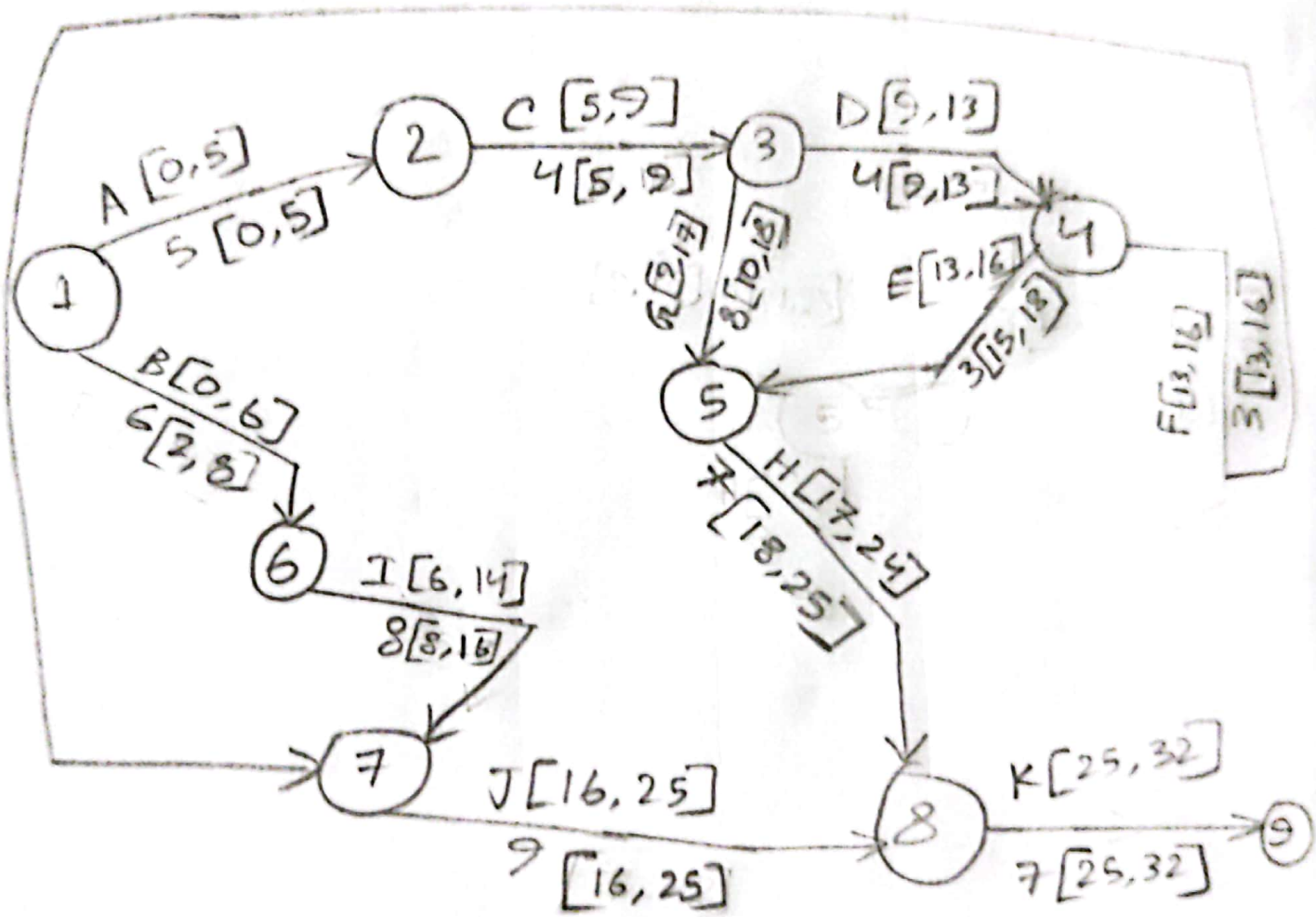
The network (PERT):



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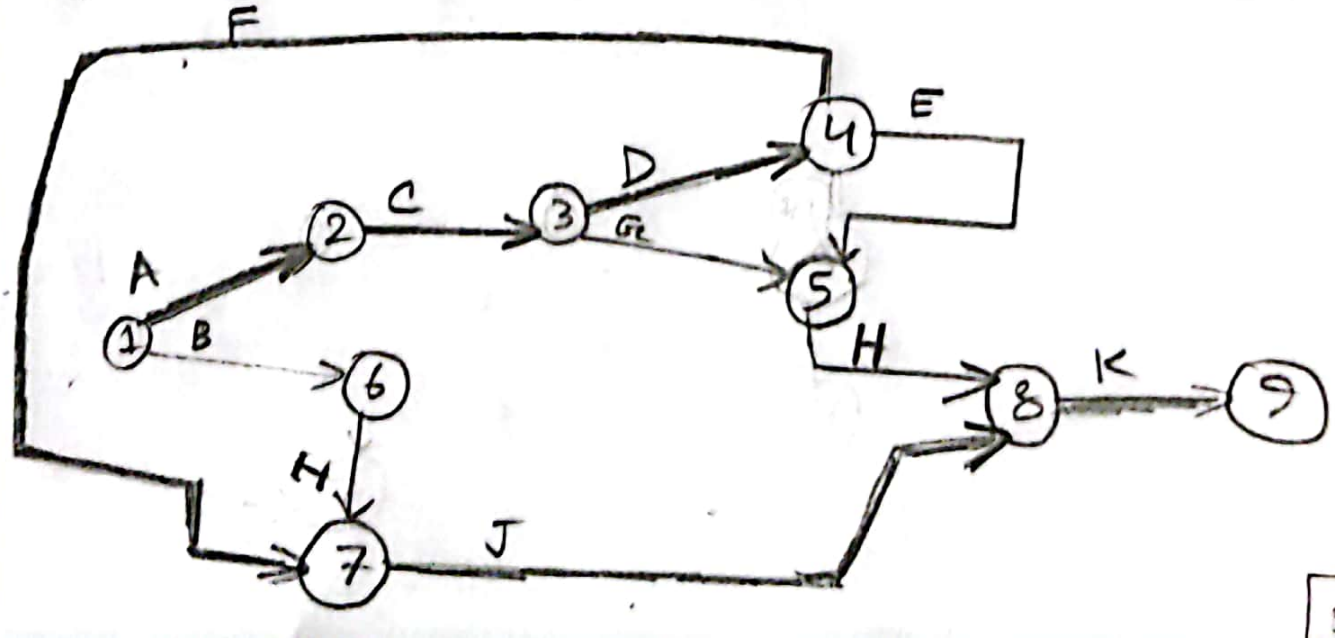
Activity Schedule:

Activity	Earliest Start (ES)	Latest Start (LS)	EF	LF	Slack (LS-ES)	Critical Path
A	0	0	5	5	0	Yes
B	0	2	6	8	2	
C	5	5	9	9	0	Yes
D	9	9	13	13	0	Yes
E	13	15	16	18	2	
F	13	13	16	16	0	Yes
G	9	10	17	18	1	
H	17	18	24	25	1	
I	6	8	14	16	2	
J	16	16	25	25	0	Yes
K	23	25	32	32	0	Yes

So, the critical Path in the network:



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

∴ Critical Time = 32. (Ans).

Ans. to the Ques. No. 5

(a) DFD is the short form of Data Flow Diagram. The data flow of a system or a process is represented by DFD.

DFD has many elements -

- Processes
- Datatypes
- Data Flow
- External Entity.

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There are 3 levels of DFD and those are :

⇒ 0-Level Diagram (Context Level)

⇒ Level-1 Digrcam

⇒ Level-2 Diagram

(b)

Use Case Naractives : It is a text based description of use cases, which has ~~decision~~ decision trees or other understandable notations and symbols.

It is an important communication tool between developers of any system and the intended users of the system.

PSPEC (Process Specification): It is used to describe all flow model processes, at final level of the projects refinement.

This method is used to document, analyze and explain the decision making logic and formulas. These used to create output data from process input data. It reduces ambiguity.

CSPEC (Control Specification): It represents the behaviour of a system. It contains 'Sequential State Diagram'. that is a sequential specification of behaviour.

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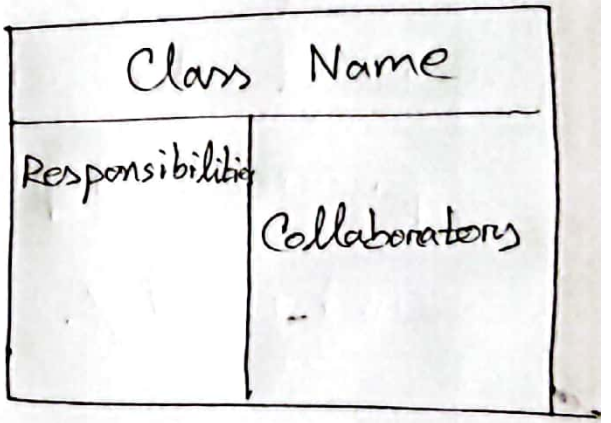
CRC (Class Responsibility Collaboration):

It is a brainstorming tool, used to design object oriented software.

CRC cards are usually created from index cards. The card is partitioned into three sections -

1) Class Name
2) Responsibilities
3) Collaborators



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(a)

1. Level-0 Diagram for IUMS (AUST).

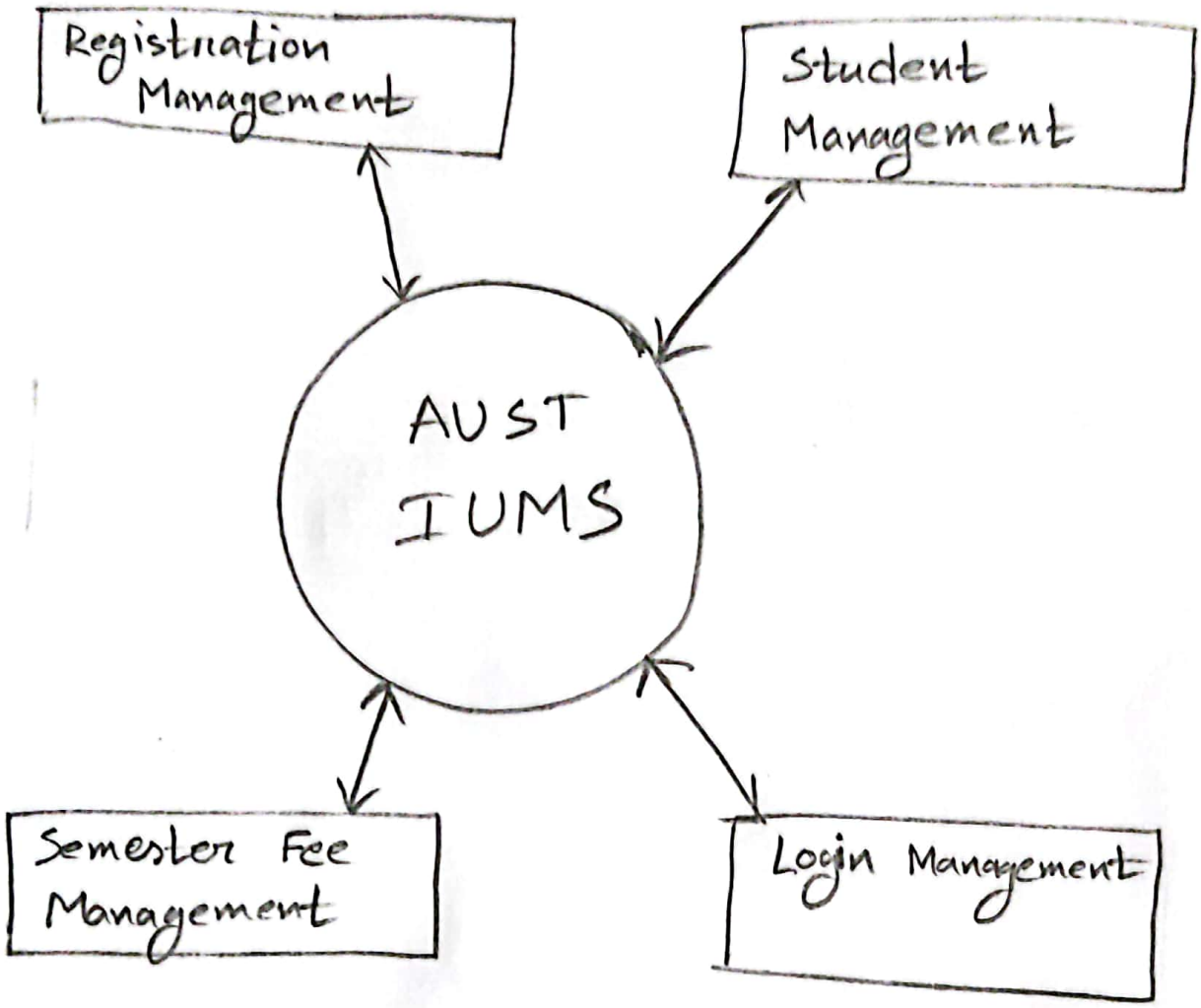

Fig: Level-0 DFD (IUMS AUST)

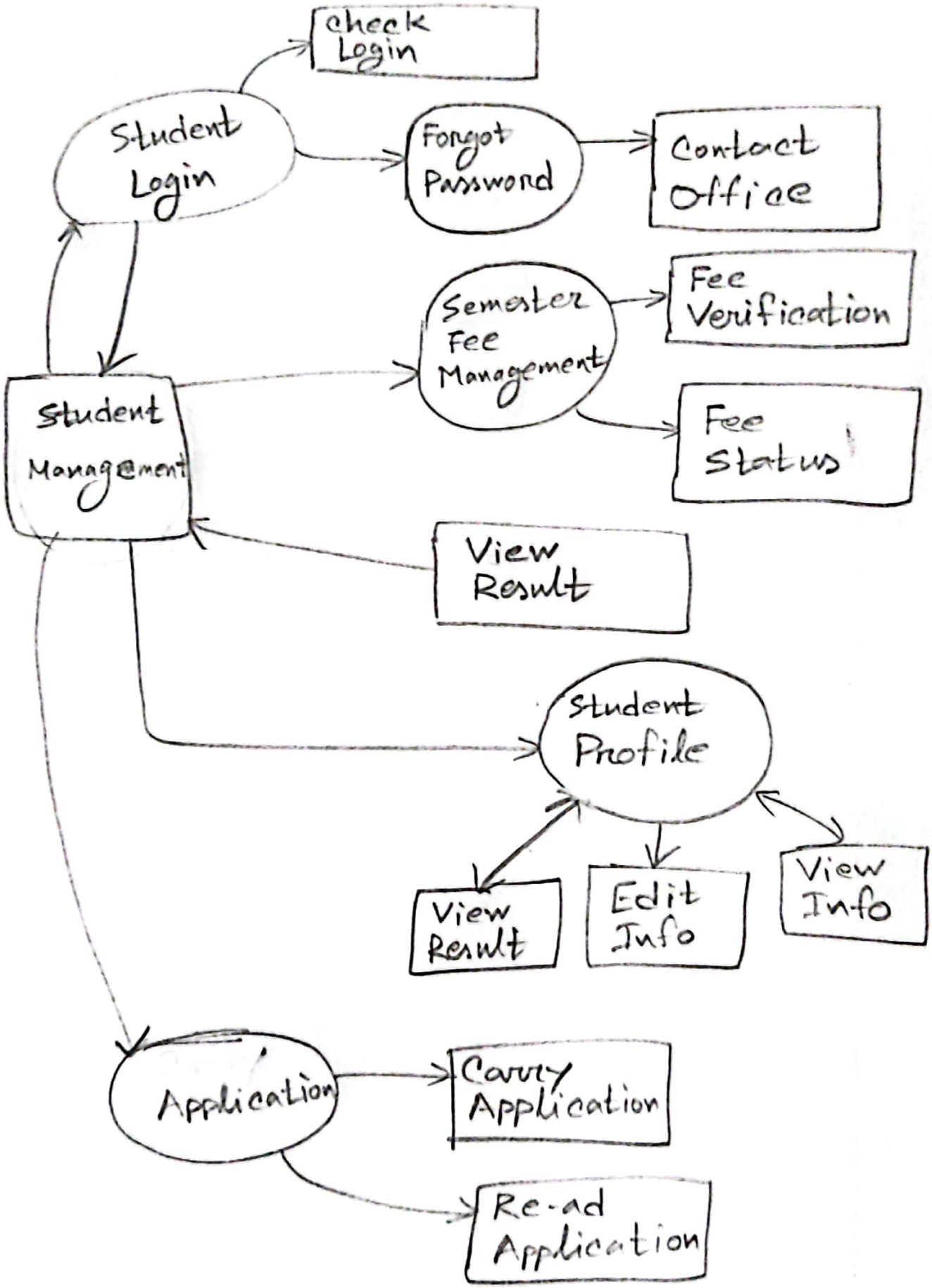

Fig: Level-1 DFD (UMS Adst)