ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
<u>Department of Computer Science and Engineering (CSE)</u>

MID SEMESTER EXAMINATION   **SUMMER SEMESTER, 2020-2021**
DURATION: 1 HOUR 30 MINUTES   **FULL MARKS: 75**

SWE 4803: Software Project Management
Programmable calculators are not allowed. Do not write anything on the question paper.
Answer **all 3 (three)** questions. Marks of each question and corresponding CO and PO are written in the right margin.

---

1. a) A project manager is trying to complete a software project but cannot get enough attention for the project. Resources are focused on completing process-related work and the project manager has little authority to assign resources. | 2+5 (CO1) (PO1)
   - i. What type of organization must the project manager be working in?
   - ii. How would you describe the main difference between a matrix and a functional organization?

   b) Walton recently authorizes a new project to develop a faster, cheaper, and thinner mobile based on advances in memory and electronics technology. They also want to provide few mobile financial apps as preloaded apps. What are the fundamental factors that influence the leaders to authorize such project? | 3 (CO1) (PO1)

   c) A company recently invested $10,000 for the purpose of replacing some of its production server with high-performance server. This is expected to result in incremental benefits of $5,000 in 1st year, $3,000 in 2nd year and $4,000 in 3rd year. Calculate the benefit-cost ratio of the replacement project if the applicable discounting rate is 5%. | 7 (CO1) (PO11)

   d) As an investor, you can invest in two projects. Project **A** requires an investment of $10,000 which will give a return of $3,000 each year for 4 years. Project **B** requires an investment of $7,500 which will give a return of $1,000, $1,500, $2,000, and $2,500 for the next 4 years. In which project you should invest if the **Discount rate** (%) = (The last two digit of your student ID *mod* 10) + 1 | 8 (CO1) (PO11)

2. a) One of your projects had five team members. Due to crashing, now the total project members become eight. How many communication channels have been added due to crashing? | 5 (CO3) (PO2)

   b) A project manager is starting work on a software development project and the project sponsor is from Europe and few developers are working form Europe in the same project. The project work is being done in your country with 14 developers, 1 architect, 1 DBA and 3 QA members. What should the project manager do to make sure all the work in this project is defined properly to complete the project? | 5 (CO3) (PO2)

c) Based on the chart shown in Table 1, what is the lowest cost of crashing the project to complete the project four weeks earlier than the baseline schedule? What activities should go through crashing for that?

7
(CO3)
(PO2)

Table 1: Table for Question 2.(c)

Activity	Baseline		Crash	
	Time	Cost ($)	Time	Cost ($)
A	10	4000	8	6000
B	2	6000	2	6000
C	14	22000	12	26000
D	6	9000	5	10000
E	9	14000	7	19000
F	8	18000	4	36000

d) What is the purpose of resource leveling and resource smoothing?

8
(CO3)
(PO2)

3. Table 2: Table for Question 3.(a)

10+5+10
(CO2)
(PO2)

Activity	Precedence Activity	Duration (Weeks)
Start		0
C	Start	3
D	C	6
A	C	8
E	D	4
B	A, E	5
F	E	3
End	B, F	0

a) Draw the complete precedence network for the information provided in Table 2.

b) Find the Critical path.

c) Suppose the resource for activity A is assigned to an additional, more important project. As a result, he/she will not be able to devote expected amount of time for this current project. Activity A will now take 11 weeks to complete. How does this affect the project?