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Daffodil International University

Faculty of Science & Information Technology

Department of Software Engineering

Midterm Examination; Fall-2026

Course Code: SE 411; Course Title: Software Project Management & Documentation

Sections 40 (A - H) Teachers: MKS, DSM, MSI

Time: 1:30 Hrs **Marks: 25**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

Case Study: AI-Based Smart Hospital Management System

Read the case carefully. You may invent and incorporate additional information wherever necessary. You are appointed as the Project Manager of a software company that has received a contract to develop an AI-based Smart Hospital Management System for a chain of hospitals operating across Bangladesh. The project duration is 6 months, and the budget is limited with very little contingency reserve.

The client expects an integrated solution including:

Electronic Health Records (EHR),
Online Appointment Management,
AI-assisted Disease Prediction,
Pharmacy and Inventory Management,
Billing and Insurance Processing.

The project team consists of 2 Systems Analysts, 4 software engineers, 2 UI/UX designers, 2 QA engineers, 1 database administrator and few support staff. While the development team is technically competent, most members have little experience working on healthcare software and AI applications. Several stakeholders are involved, including hospital directors, doctors, nurses, IT administrators, insurance companies, government regulatory authorities, and patients. Some stakeholders have conflicting priorities. Doctors demand usability and speed, while management is primarily concerned with cost and compliance.

As the project manager, you are allowed to select suitable management approaches, communication methods, quality assurance techniques, procurement strategies, and motivational practices to ensure successful project completion.

1.	a. **Draw a WBS** for the above project so that it can be easily controlled. b. **Predict** the challenges for the given case study (project).	[Marks-3] [Marks-3]	CO-1 *Level-3*

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2.	**a.** In a predictive project development, some activities are given below. **Optimize** the following chart filling the dash spaces (----) with Duration, Predecessors and make the list complete.	[Marks-2]	CO-2 *Level-4*

Activities	Predecessors	Duration (in Day)
A.	None	8
B.	A	15
C.	A	12
D.	A	15
E.	B	10
F.	C,D	30
G.	E,F	----
H.	G	12
I.	G	8
J.	-----	10
K.	-----	----

b. Now following answer of question 2.a. **correlate** the information to a Network Diagram for all 11 activities. Identify the critical path. [Marks-6+1=7]

c. Identify cash flow for the following information. [Marks-5]

Year ➡ Amount in $	0	1	2	3
Investment	200,000/-	20,000/-	25,000/-	25,000/-
Income	30,000/-	85,000/-	95,000/-	85,000/-
Interest Rate	6%	6%	5%	5%
Cash Flow				

d. Select one quality issue from the given case and **analyze** your issue following any quality improvement tool to solve it. [Marks-5]