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Course Code: CSE 227
Course Title: System Analysis and Design
Class Test: 3 Section: 65_D
Total Marks: 15 Time: 1hr 10min

Answer the following questions:

1. A software company is developing a Smart Traffic Monitoring System for a metropolitan city. The system will collect real-time data from road sensors and traffic cameras, process this information to analyze traffic flow, and support dynamic traffic signal control. The development team has identified the following tasks and their dependencies:

Task	Activity	Dependency	Duration (Weeks)
A	Initial Project Planning	–	2
B	Requirement Analysis	A	2
C	Sensor Hardware Integration Design	B	3
D	Traffic Camera Feed Processing	B	4
E	Data Storage & Cloud Setup	A	2
F	Traffic Decision Logic Development	C, D, E	3
G	Mobile App Interface Design	B	2
H	System Integration & Testing	F, G	2
I	Final Deployment	H	1
J	Staff Training & System Handover	I	1

(a) Draw a Gantt Chart showing the timeline of project activities. 3
(b) Draw a PERT diagram based on the above task list. Identify the critical path and calculate the critical value. 6
(b) Determine which tasks have slack time. 2

2. A government agency is developing a Disaster Relief Management System to coordinate relief efforts during natural calamities such as floods, cyclones, or earthquakes. The system will collect data on affected regions, available resources (e.g., food, shelter, medical), and assign support teams accordingly. It must also generate reports for government officials and NGOs to track aid distribution.

(a) Design a user-friendly input form for emergency response staff to register affected areas and resource needs. 4