

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V EXAMINATION – SUMMER 2025

Subject Code:3151711

Date:13-05-2025

Subject Name:Building Automation

Time:02:30 PM TO 05:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) What are the prerequisites for understanding a building automation system? Discuss the technical justification.	03
	(b) List the fire standards implemented in Indian continents by the government. Discuss in brief at least two with its importances in context to Building safety.	04
	(c) Explain functional differences between Building Automation and Home Automation system.	07
Q.2	(a) Describe how M+E+P is essential parts for Building Automation system.	03
	(b) Distinguish application of various fire extinguishers by considering types of fire.	04
	(c) Draw and describe the working of Fire Alarm System in details.	07
OR		
	(c) Draw and describe the working of Water sprinklers in context to fire fighting system.	07
Q.3	(a) Define DAC,MAC and RBAC based access control system.	03
	(b) What do you mean by auxiliary system in Fire control panel? Brief at least two systems in detail.	04
	(c) Draw and describe Automatic Door (Elector-magnet based) Access control System using Finger-print reader	07
OR		
Q.3	(a) Explain the working of Fire loop.	03
	(b) Differentiate the working of Smart card versus RFID card.	04
	(c) Draw and describe the working of QR code based entry/Exit gate operation.	07
Q.4	(a) In what ways do green building concepts promote sustainability? Provide your perspective on the matter.	03
	(b) What are the requirements for regulating the illumination in the building? Discuss at least one control system using LDR as a prime sensor.	04
	(c) Draw the schematic of CCTV and describe each block in detail.	07
OR		
Q.4	(a) “NVR is better option than DVR. Prove it by writing technical comments.	03
	(b) With net sketch describe the working of PTZ camera. Discuss its benefits of other POE based camera.	04
	(c) Explain the working of IR-based Intruder control system.	07
Q.5	(a) Write the main objective of HVAC system	03
	(b) Draw schematic of electro-mechanical Ventilation system. Describe each parts in brief.	04
	(c) Explain with net sketch the working, limitation and benefits of Air handling Unit (AHU)	07

OR

- Q.5** (a) Brief about the BACnet communication protocols used in Building Automation. **03**
(b) Differentiate VAV with CAV **04**
(c) Draw and describe the working of Weather station in context to HVAC system. **07**

