

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- V EXAMINATION-SUMMER 2023****Subject Code: 3151711****Date: 23/06/2023****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) Explain following terms in context of camera: Auto Iris, WDR and Vari-focal.	03
	(b) Which are the different types of cables used as a part of Building Automation System? Explain in details.	04
	(c) Enlist different communication protocol used in HVAC System. Explain it in detail.	07
Q.2	(a) Explain the advantages and limitations of biometric systems	03
	(b) Explain ATU and AHU in detail.	04
	(c) Discuss DDC in HVAC. Explain IBMS project cycle.	07
OR		
	(c) Compare DAC, MAC & RBAC.	07
Q.3	(a) Compare the HVAC (Residential) system with HVAC (Commercial) system.	03
	(b) Categorize boiler according to heating method and give its difference.	04
	(c) What is refrigerant? Draw the refrigeration cycle. And explain each block in detail.	07
OR		
Q.3	(a) 1. What is BTU? Relate it with Ton. 2. What is EER? What it indicates? 3. What is Thermostat?	03
	(b) What is Network? Justify the statement “Communication between components in the system is Important”	04
	(c) Explain “why Ventilation should be good in a Building?” and list out the ways to have good ventilation system in a building.	07
Q.4	(a) Explain: 1. Vertical Farming 2. LEED 3. ASHRAE	03
	(b) Elaborate in detail Different Methods for Energy Saving.	04
	(c) Elaborate in detail “Level Control” in overhead tank with necessary circuit Diagram.	07
OR		
Q.4	(a) Explain Process of Rating for Green Building.	03
	(b) List out materials used in Green building concept. Differentiate them with the ordinary material.	04
	(c) Elaborate in detail “Illumination Control” with necessary circuit Diagram.	07
Q.5	(a) What are the different phases of fire? Draw a block diagram of fire detection and alarm system.	03
	(b) Differentiate between VAV and CAV.	04
	(c) Draw typical CCTV based surveillance system. State the component of analog CCTV system and IP based CCTV system.	07

OR

- Q.5** (a) Justify the use of people counter in access control system **03**
(b) Give comparison between NVR and DVR. **04**
(c) Explain the concept of Access Control as a part of Building Automation. Also **07**
explain various components and access control system design.
