Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V (NEW) EXAMINATION – SUMMER 2021
Subject Code:3151711   **Date:07/09/2021**
Subject Name:Building Automation
Time:10:30 AM TO 01:00 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)**	Give Full Forms of following 1. HVAC 2. AHU 3. ASHRAE 4. BACnet 5. EER 6. IBMS	03
	(b)	Explain and draw architecture Building Management System.	04
	(c)	Enlist different communication protocol used in HVAC system. Explain it in detail.	07
Q.2	**(a)**	How different types of hazard and their level are identified using NFPA rating?	03
	(b)	What is Network? Justify the statement "Communication between components in the system is Important"	04
	(c)	What is refrigerant? Draw the refrigeration cycle. And explain each block in detail.	07
		OR	
	(c)	Explain typical Air Handling Unit with basic operation. Also brief about Chillers	07
Q.3	**(a)**	Write short note on: Energy Saving concepts & methods.	03
	(b)	What is Thermostat? Compare the HVAC (Residential) system with HVAC (Commercial) system.	04
	(c)	Explain how integration of FAS with other systems increases safety?	07
		OR	
Q.3	**(a)**	Explain "why Ventilation should be good in a Building?" and list out the ways to have good ventilation system in a building.	03
	(b)	What is BTU? Relate it with Ton. Also explain ATU.	04
	(c)	List out different fire detectors & Explain it in detail.	07
Q.4	**(a)**	Compare NVR and DVR.	03
	(b)	Explain following terms in context of camera: Auto Iris, WDR, F number and Vari-focal.	04
	(c)	Draw typical CCTV based surveillance system. State the component of analog CCTV system and IP based CCTV system.	07
		OR	
Q.4	**(a)**	Compare different cables which are used in camera system.	03
	(b)	State the purpose of usage of Closed circuit television (CCTV).	04
	(c)	Explain the following terms: DAC, MAC and RBAC	07
Q.5	**(a)**	Explain concept of IP enabled FAS.	03
	(b)	State the different way of authentication process carried out in access control system	04

	(c)	Discuss RFID in access control. Explain Lightning control for Building Efficiency improvement.	**07**

OR

Q.5	**(a)**	Write short note on peripheral devices used in ACS.	**03**
	(b)	How Smart card differs from Proximity card?	**04**
	(c)	Explain IBMS project cycle.	**07**

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