

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2022****Subject Code:3151711****Date:04-01-2023****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.

	<b>MARKS</b>
<b>Q.1 (a)</b> State TRUE/FLASE with brief justification	<b>03</b>
1. Smoke detector is one kind of fire sensor.	
2. IP camera works without Internet network.	
3. PTZ camera is very popular in small shops.	
<b>(b)</b> Compare green building and smart building with various points, also mention one example of each.	<b>04</b>
<b>(c)</b> Illustrate various techniques for design of secure, safe and green building. Write example of Green Building in India.	<b>07</b>
<b>Q.2 (a)</b> Which are the main parameter for building efficiency improvement? Write full form of LEED.	<b>03</b>
<b>(b)</b> Compare NVR and DVR with various points	<b>04</b>
<b>(c)</b> Compare VAV and CAV with various points related to HVAC system	<b>07</b>
<b>OR</b>	
<b>(c)</b> Enlist application of HVAC system with its architecture and necessary diagrams. Enlist any five popular places where HVAC system installed in city.	<b>07</b>
<b>Q.3 (a)</b> Explain one example of IOT in BMS.	<b>03</b>
<b>(b)</b> Write full form of ASHRAE and draw any four symbol	<b>04</b>
<b>(c)</b> In HVAC what it the functionality of AHU? Explain with necessary diagrams.	<b>07</b>
<b>OR</b>	
<b>Q.3 (a)</b> Draw block diagram of fire control panel.	<b>03</b>
<b>(b)</b> Write short note on Network layers.	<b>04</b>
<b>(c)</b> Explain various types of CCTV camera used in security and surveillance. Explain installation block diagram of CCTV	<b>07</b>
<b>Q.4 (a)</b> Explain any two advance application of security system other than CCTV	<b>03</b>
<b>(b)</b> Enlist different types of hazard classification using NFPA standard.	<b>04</b>
<b>(c)</b> Enlist various component used in BMS and explain any two in details.	<b>07</b>
<b>OR</b>	
<b>Q.4 (a)</b> Enlist different protocol used in BMS	<b>03</b>
<b>(b)</b> Enlist various types of lighting control for building management system.	<b>04</b>
<b>(c)</b> What is the need of access control system in the Industry and residential building, Explain any three modern technique of access control.	<b>07</b>
<b>Q.5 (a)</b> Explain working principle flame ionization type detector	<b>03</b>
<b>(b)</b> Explain term related to camera: FPS, Focal length, Auto Iris, Digital and optical zoom.	<b>04</b>

- (c) Explain Fire Alarm System with its block diagram and compare various Fire detector and Fire sensors with examples. **07**

**OR**

- Q.5** (a) State difference between RFID and proximity based system. **03**  
(b) What the application of networks in BMS? Compare TREE and MESH network with various points. **04**  
(c) Explain refrigeration cycle with its block diagram in details. **07**

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