

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2024****Subject Code: 3151711****Date: 16-05-2024****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) List out the building control system that can address the following objectives: Safe, Secured and comfortable environment **03**
- (b) Brief about following terms: **04**  
BACnet, ZigBee, Field controllers and PLC
- (c) Draw system architecture of Building Automation System (BAS). Brief about Tier 1, Tier 2, Tier 3 and Tier 4 in context of BAS. **07**
- Q.2**
- (a) Brief about the different phases of fire? **03**
- (b) State the different criteria to determine layout of the fire detectors. **04**
- (c) Explain working principle and application of different type of Smoke detectors. **07**
- OR**
- (c) Brief about addressable fire detection and alarm system. State the benefits of it. **07**
- Q.3**
- (a) State the purpose of usage of Closed circuit television (CCTV). How CCTV system is different than Television system. **03**
- (b) Brief about IR Bullet camera and their use. **04**
- (c) Draw a typical CCTV based surveillance system. State the component of analog CCTV system and IP based CCTV system. **07**
- OR**
- Q.3**
- (a) What is Auto-Iris and WDR feature of lens? **03**
- (b) Brief about Pan Tilt & Zoom (PTZ) camera and their use. **04**
- (c) Explain following selection criteria of CCTV based surveillance system in detail: **07**  
Camera selection, Network Selection, System power, Video storage, Environmental factors, Operating the system
- Q.4**
- (a) State the different levels of security systems. **03**
- (b) What is perimeter protection? Brief about detection by Buried cable in detail. **04**
- (c) Explain control panel and I/O devices of typical access control system. **07**
- OR**
- Q.4**
- (a) Brief about Dome camera and their use. **03**
- (b) Compare Electric strike and Magnetic lock. **04**
- (c) State the advantages and limitations of following biometric system: **07**  
Retina scan, Fingerprints and Iris scan

- Q.5** (a) Brief about HVAC control. **03**  
(b) Write short note on BMS controller. **04**  
(c) Brief about: Green building - concept, standardization and certification **07**

**OR**

- Q.5** (a) How smart building can improve the economics over traditional building? **03**  
(b) State the difference between smart building and Green building. State some common point between smart building and green building. **04**  
(c) Give overview of HVAC system and explain basic architecture of HVAC with all the components. **07**

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