Scheme – I
Sample Question Paper

Program Name : Diploma in Instrumentation / Instrumentation and Control

Program Code : IS/IC

Semester : SIXTH

Course Title : Building Automation

Marks : 70

22649

Time: 3Hrs.

Instructions:

(1) All questions are compulsory.

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data if necessary.

(5) Preferably, write the answers in sequential order.

Q.1 Attempt any FIVE of the following. **(10 Marks)**

    a. List any two applications of BMS.
    b. Draw human comfort zone on psychometric chart.
    c. State the principle of operation of FAS.
    d. Draw the block diagram of DDC system.
    e. List any two features for optimal control in facility management system.
    f. State the significance of BMS.
    g. State the function of annunciator panel in FAS.

Q.2 Attempt any Three of the following. **(12 Marks)**

    a. Explain the effect of any two parameters on building automation system.
    b. Define: i) Relative humidity ii) Dew point temperature.
    c. Draw FAS. Explain its operation in brief.
    d. Suggest any four required entrance camera specifications of bank. Explain it.

Q.3) Attempt any Three of the following. **(12 Marks)**

    a. Draw labeled sketch of AHU. Write routine maintenance activities for AHU.
    b. State the benefits of an access control system.
    c. Explain use of time scheduling feature.
    d. Compare between zone level controller and system level controller.

Q.4) Attempt any Three of the following. (12 Marks)

   a. Draw the system architecture of the CCTV system. Explain it in brief.
   b. Explain any two DDC operators in brief.
   c. List the initiating devices (sensors) used in FAS. Explain the working of any one in brief.
   d. Explain load rolling in brief.
   e. Describe the functions of operation level and management level controllers.

Q.5) Attempt any Two of the following. (12 Marks)

   a. Explain chiller system in HVAC with neat schematic. Suggest the possible unsafe conditions that could occur during its working.
   b. Differentiate between DVR and NVR system.
   c. Describe the need of energy management software in BMS.

Q.6) Attempt any Two of the following. (12 Marks)

   a. Explain ventilation (air mixing) process in HVAC with suitable example using psychometric chart. Assume suitable data.
   b. Design a single door access control system. Explain it in brief.
   c. List the information management features. Explain use of any two with suitable example.

Scheme – I
Sample Test Paper - I

Program Name : **Diploma in Instrumentation / Instrumentation and Control**

Program Code : **IS/IC**

Semester : **SIXTH**

Course Title : **Building Automation**

Marks : **20**

Time:1 Hour

22649

Instructions:

    (1) All questions are compulsory.

    (2) Illustrate your answers with neat sketches wherever necessary.

    (3) Figures to the right indicate full marks.

    (4) Assume suitable data if necessary.

    (5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.   **(8 Marks)**
    a. State the concept of building automation.
    b. Give any four specifications of a typical BMS.
    c. Draw the architecture of typical building management system.
    d. List any four applications where building management systems are used.
    e. List any two BMS providers available in market.
    f. State benefits of lighting control systems in buildings.

Q.2 Attempt any THREE.   **(12 Marks)**

    a. Draw the psychometric chart. Show the human comfort zone on it.
    b. Draw the labeled schematic of basic central air conditioning system.
    c. Describe the sequence of operation of the HVAC system.
    d. Compare the boilers used in HVAC systems.
    e. Explain the routine maintenance activities to be done by a technician for improving the efficiency of HVAC system.

Scheme – I
Sample Test Paper - II

Program Name : Diploma in Instrumentation / Instrumentation and Control

Program Code : IS/IC

Semester : SIXTH

Course Title : Building Automation

Marks : 20

22649

Time:1 Hour

Instructions:

    (1)   All questions are compulsory.

    (2)   Illustrate your answers with neat sketches wherever necessary.

    (3)   Figures to the right indicate full marks.

    (4)   Assume suitable data if necessary.

    (5)   Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.   **(8 Marks)**

    a. Draw the architecture of a CCTV system.
    b. List the components of an access control system.
    c. State the basic types of sensors used in fire alarm systems.
    d. Draw the neat labelled diagram of DDC system.
    e. State feature of BMS for precooling a building before the mechanical cooling is started.
    f. List the benefits of Access Control Systems.

Q.2 Attempt any THREE.   **(12 Marks)**

    a. Draw the system architecture of FAS. Explain it in brief.
    b. Compare DVR and NVR system.
    c. List the information management features. Explain any two in brief.
    d. Explain any two features for optimal facility control in brief.
    e. Draw hierarchical controller configuration of BMS.