JGI	**ARKA JAIN University** Jharkhand | NAAC GRADE A ACCREDITED UNIVERSITY		[06-05-2026] END SEM EXAMINATION School of Engineering & IT
Program	**Electrical & Electronics Engineering**	**Branch**	**Diploma**
Subject Name	**Building Electrification**	**Session**	**Even, 2025-26**
Semester	**VI**	**Year**	**April, 2026**
Time: 3 Hour Max. Marks : 70	• Start writing from 2nd page onwards; **don't Write on the 1st Page Backside** • **Answer all Questions of Section A (Compulsory)** • **Answer Any Four out of Six of Section B** • **Answer Any Three out of Five of Section C** • **Possession of Mobile Phone** or any kind of **Written Material, Arguments with the Invigilator or Discussion with Co-Student** will comes under **Unfair Means** and will **Result** in the **Cancellation of the Paper(s).**		
Knowledge Level (KL)	**K1** : Remembering	**K3** : Applying	**K5** : Evaluating
	K2 : Understanding	**K4** : Analysing	**K6** : Creating

Section A (Each question Carry 02 Marks from Q1-i to x – 20 Marks)

Q.N 1	QUESTIONS	Marks	COs	KL
i	List any five tools used for electrical wiring.	02	CO1	K1
ii	Define the term electrical accessories.	02	CO1	K2
iii	Name the tools used for measuring wire size.	02	CO1	K1
iv	Define stranded conductor and solid conductor.	02	CO2	K2
v	List the factors determining the selection of wiring methods.	02	CO2	K1
vi	What do you mean by PVC casing-capping wiring?	02	CO2	K2
vii	List the basic electrical symbols used in residential building diagrams.	02	CO4	K1
viii	What is service connection?	02	CO6	K2
ix	What is HRC fuse?	02	CO4	K1
x	Define earthing.	02	CO4	K2

Section B (Answer any FOUR out of SIX) – 20 Marks
(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Explain the difference between a two-pin and three-pin plug.	05	CO1	K4
3	Evaluate the importance of armouring in underground cables.	05	CO2	K3
4	Describe PVC casing-capping wiring with its advantages and disadvantages.	05	CO4	K5
5	Assess the economic factors involved in residential wiring estimation.	05	CO5	K6
6	Calculate the illumination on a surface placed 3 meters from a light source with a luminous intensity of 150 candela.	05	CO3	K5
7	Determine the factor that affect the life of an electrical fuse.	05	CO6	K3

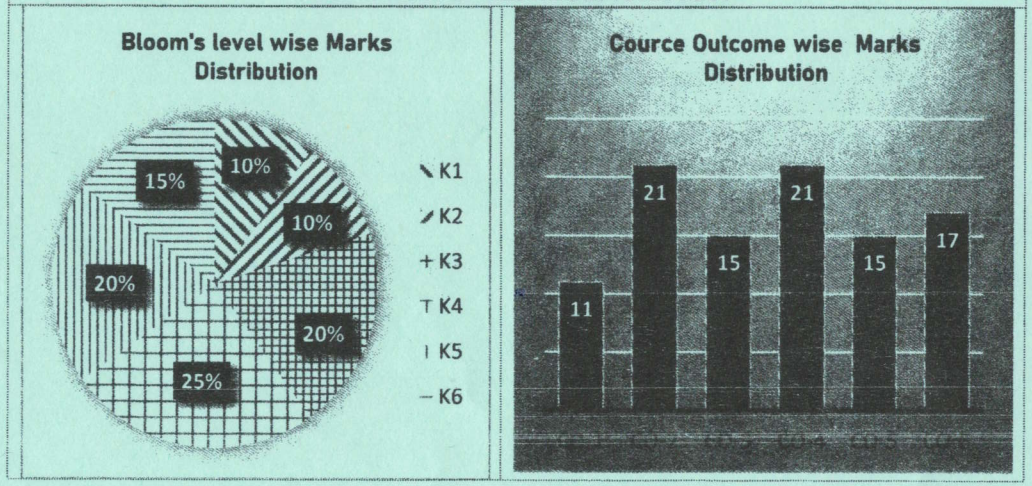
Section C (Answer any THREE out of FIVE) – 30 Marks
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	A fuse rated at 10 A is connected to a circuit with a total resistance of 5 ohm. The supply voltage is 50 V. 1. Will the fuse blow under normal operating Conditions? 2. Determine the maximum load power the circuit can handle without blowing the fuse.	10	CO5	K5
9	Create a comparison table of insulation materials with properties and applications.	10	CO2	K6
10	Discuss the factors affecting the choice of wiring system.	10	CO6	K3
11	Explain the difference between residential and industrial loads.	10	CO4	K4
12	Compare incandescent, fluorescent and LED lamps based on luminous efficiency.	10	CO3	K4

CO- Course Outcomes, **KL**- Knowledge Level, **PO** – Program Outcome

Course Outcomes	CO1	Identify various wiring tools, accessories, wiring methods, cables and remembering different IEC act.
	CO2	Understanding the fundamentals of electrical Installations like requirements, design considerations, testing, estimating and costing.
	CO3	Apply various scheme of illumination, the energy conversation method used in it and design methods of illumination system for building complexes.
	CO4	Select the design procedure, estimation and costing method, safety aspect of electrical installation in a commercial building, hospital, industries.
	CO5	Decide estimation and costing methods of outdoor, indoor substations and different electrification.
	CO6	Justify as per national electrical Code of service connections and its safety aspects according to user requirement and prepare report.

GRAPHICAL REPRESENTATION



JGI	**ARKA JAIN University** Jharkhand | NAAC GRADE A ACCREDITED UNIVERSITY		[08-05-2026] END SEM EXAMINATION School of Engineering & IT
Program	**Electrical & Electronics Engineering**	**Branch**	**Diploma**
Subject Name	**Internet of Things**	**Session**	**Even, 2025-26**
Semester	**VI**	**Year**	**April, 2026**
Time: 3 Hour Max. Marks : 70	• Start writing from 2nd page onwards; don't Write on the 1st Page Backside • **Answer all Questions of Section A (Compulsory)** • **Answer Any Four out of Six of Section B** • **Answer Any Three out of Five of Section C** • **Possession of Mobile Phone or any kind of Written Material, Arguments with the Invigilator or Discussion with Co-Student will comes under Unfair Means and will Result in the Cancellation of the Paper(s).**		
Knowledge Level (KL)	**K1** : Remembering	**K3** : Applying	**K5** : Evaluating
	K2 : Understanding	**K4** : Analysing	**K6** : Creating

Section A (Each question Carry 02 Marks from Q1-i to x – 20 Marks)

Q. N 1	QUESTIONS	Marks	COs	KL
i	Define Internet of Things (IoT).	02	CO1	K1
ii	What are smart devices in IoT?	02	CO2	K2
iii	What is a sensor in IoT?	02	CO5	K1
iv	Define actuator with an example.	02	CO5	K2
v	State any two features of Arduino.	02	CO3	K2
vi	What is cloud computing in IoT?	02	CO4	K1
vii	What is a sensor network?	02	CO4	K2
viii	Define automation in IoT.	02	CO3	K2
ix	What is a smart home system?	02	CO2	K1
x	What is the role of gateway in IoT?	02	CO5	K2

Section B (Answer any FOUR out of SIX) – 20 Marks
(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Explain the key factors that led to the emergence of IoT.	05	CO1	K2
3	Discuss various application areas of IoT with examples.	05	CO2	K3
4	Analyze the importance of sensor networks in IoT.	05	CO4	K4
5	Describe building blocks of IoT.	05	CO5	K2
6	Discuss challenges in IoT implementation.	05	CO4	K4
7	Explain how automation is achieved using Arduino.	05	CO3	K3

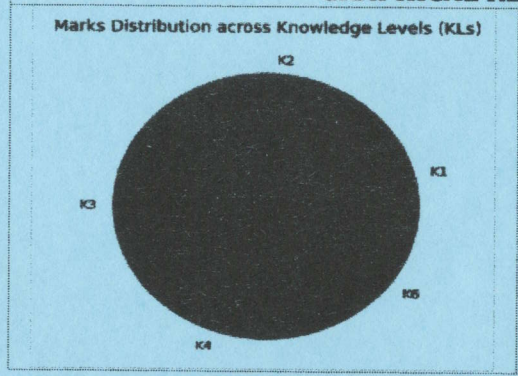
Section C (Answer any THREE out of FIVE) – 30 Marks
(Each question Carry 10 Marks)

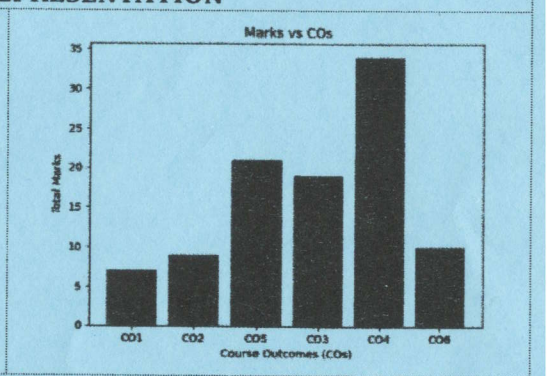
Q. No.	QUESTIONS	Marks	COs	KL
8	Design an Arduino-based home automation system with diagram and explanation.	10	CO5	K6
9	How does Zigbee work and what makes it suitable for home automation in IoT systems?	10	CO3	K3
10	Explain integration of IoT with cloud computing infrastructure.	10	CO6	K2
11	Design the IoT Levels 3, 4, & 6 with its real time examples.	10	CO4	K6
12	Explain different communication protocols used in IoT with comparison.	10	CO4	K4

CO- Course Outcomes, KL- Knowledge Level, PO – Program Outcome

Course Outcomes	CO1	Identify the factors that contributed to the emergence of IoT.
	CO2	Understand the application areas of IoT.
	CO3	Apply Arduino to get automations as per requirement.
	CO4	Analyze the evolution of Internet in Mobile Devices, Cloud & Sensor Networks.
	CO5	Evaluate building blocks of Internet of Things and characteristics.
	CO6	Design an IoT device to work with a Cloud Computing infrastructure.

GRAPHICAL REPRESENTATION





JGI	ARKA JAIN University, Jharkhand	NAAC GRADE A	[11-05-2026] END SEM EXAMINATION School of Engineering & IT

Program	**Electrical and Electronics Engineering**	**Branch**	**Diploma**
Subject Name	**Energy Efficiency and Audit**	**Session**	**Even, 2025-26**
Semester	**VI**	**Year**	**April, 2026**

Time: 3 Hour
Max. Marks : 70

- Start writing from 2nd page onwards; **don't Write on the 1st Page Backside**
- **Answer all Questions of Section A (Compulsory)**
- **Answer Any Four out of Six of Section B**
- **Answer Any Three out of Five of Section C**
- **Possession of Mobile Phone** or any kind of **Written Material, Arguments with the Invigilator or Discussion with Co-Student** will comes under **Unfair Means** and will **Result** in the **Cancellation of the Paper(s)**.

Knowledge Level (KL)			
	K1 : Remembering	**K3** : Applying	**K5** : Evaluating
	K2 : Understanding	**K4** : Analysing	**K6** : Creating

Section A (Each question Carry 02 Marks from Q1-i to x – 20 Marks)

Q. N 1	QUESTIONS	Marks	COs	KL
i	Classify the types of the energy available on the earth?	02	CO1	K1
ii	What is star labelling, and why is it significant?	02	CO2	K2
iii	Give the applications of pumps.	02	CO3	K1
iv	Mention two tips for energy saving in fans and blowers.	02	CO4	K2
v	Name various energy efficient lighting devices used for energy saving.	02	CO5	K1
vi	How does the centrifugal compressor works?	02	CO6	K2
vii	What are the causes of technical losses in electrical systems?	02	CO3	K1
viii	List the energy conservation techniques used in induction motors.	02	CO5	K2
ix	Define energy audit as per the Energy Conservation Act.	02	CO6	K1
x	State the purpose of a simple payback period.	02	CO1	K2

Section B (Answer any FOUR out of SIX) – 20 Marks
(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Describe the present energy scenario of India.	05	CO1	K3
3	Evaluate the role of innovative lighting measures in reducing energy consumption.	05	CO3	K5
4	Illustrate the need for energy conservation in induction motors and transformers.	05	CO4	K4
5	Develop a basic questionnaire for an energy audit in a commercial building.	05	CO5	K6
6	Illustrate with examples how energy-efficient devices contribute to energy conservation in households and industries.	05	CO6	K4
7	Explain briefly about the two main types of Centrifugal pumps?	05	CO2	K5

Section C (Answer any THREE out of FIVE) – 30 Marks
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	A consumer uses a 1.5-ton 5-star air conditioner for 6 hours daily, consuming 1.1 kW per hour. Another 3-star air conditioner of the same size consumes 1.5 kW per hour. Calculate the monthly electricity bill for both appliances, assuming electricity costs ₹7 per kWh. Compare the savings.	10	CO2	K5
9	Evaluate the role of energy-efficient pumping systems in reducing operational costs.	10	CO3	K6
10	Explain how periodic maintenance contributes to energy conservation in lighting systems.	10	CO4	K4
11	Examine the impact of tariff systems on energy conservation in large-scale industries.	10	CO6	K3
12	Examine the effectiveness of different instruments used in energy auditing.	10	CO5	K3

CO- Course Outcomes, KL- Knowledge Level, PO – Program Outcome

Course Outcomes	CO1	Identify Energy forecasting, Energy economics, Energy pricing and incentives for energy conservation
	CO2	Understand various options and assess the business and policy environment regarding energy conservation and energy auditing.
	CO3	Apply the strategies and policy recommendations on energy conservation and energy auditing.
	CO4	Analyze the viability of energy conservation projects.
	CO5	Evaluate technology, economics and regulation related issues associated with energy conservation and energy auditing.
	CO6	Create competency in Energy analysis techniques and methods & Energy conservation planning and practices.

GRAPHICAL REPRESENTATION

