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| R20 Regulation Subject code: C25OE5   |  | | --- | |  |   TKR COLLEGE OF ENGINEERING AND TECHNOLOGY  (Autonomous, Accredited by NAAC with ‘A’ Grade)  *Model paper 1*  **B.Tech VI Semester Regular Examinations, June 2023**  **SMART GRID TECHNOLOGIES**  ***(CSD)***  ***Maximum Marks: 70*** Duration: 3 hours  **Note:** **1. This question paper contains two parts A and B.**  **2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.**  **3. Part B consists of 5 Units. Answer any one full question from each Unit.**  **4. Each question carries 10 marks and may have a, b, c, d as sub questions.** | | | | | |
| Part-A | | | | | |
| **All the following questions carry equal marks (10x2M=20 Marks)** | | | Bloom's Taxonomy Level | | Course Outcomes |
| 1 | | Define Smart Grid? | L1 | | CO3 |
| 2 | | Give four examples of smart appliances? | L3 | | CO3 |
| 3 | | Define Geographic Information Systems(GIS)? | L1 | | CO1 |
| 4 | | Give four applications of IED’s | L1 | | CO1 |
| 5 | | Difference between fuel-cells and Solar cells in two points? | L3 | | CO1 |
| 6 | | Define Power Quality Audit? | L2 | | CO1 |
| 7 | | Give four Power Quality issues of Grid? | L1 | | CO1,CO2 |
| 8 | | Define EMC? | L2 | | CO1,CO2 |
| 9 | | Expand HAN and NAN? | L1 | | CO1,CO2 |
| 10 | | What are the Basics of CLOUD Computing? | L2 | | CO1,CO2 |
| Part-B | | | | | |
| **Answer All the following questions.** **(5 X 10M=50Marks)** | | | Bloom's Taxonomy Level | Course Outcomes | |
| 11 | What is the Need of Smart Grid in present generation? | | L1 | CO3 | |
|  | **OR** | |  |  | |
| 12 | Explain about the Plug in Hybrid Electric Vehicles(PHEV)? | | L3 | CO1 | |
| 13 | Explain the concept of Concept Intelligent Electronic Devices(IED) & their  application for monitoring& protection | | L3 | CO1 | |
|  | **OR** | |  |  | |
| 14 | Explain about the Wide Area Measurement System(WAMS)? | | L1 | CO1 | |
| 15 | Explain the Concept of micro-grid? | | L3 | CO2 | |
|  | **OR** | |  |  | |
| 16 | Explain about Variable speed wind generators? | | L1,L2 | CO1 | |
| 17 | What are the Power Quality issues of Grid connected  Renewable Energy Sources? | | L2 | CO1,CO2 | |
|  | **OR** | |  |  | |
| 18 | Discuss in detail about Power Quality Audit? | | L1 | CO1,CO2 | |
| 19 | Difference between Network(NAN), Wide Area Network (WAN), Bluetooth, ZigBee in four points? | | L1 | CO1,CO2 | |
|  | **OR** | |  |  | |
| 20 | Explain Broadband over  Power line (BPL) | | L3 | CO1,CO2 | |

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| R20 Regulation Subject code: C25OE5   |  | | --- | |  |   TKR COLLEGE OF ENGINEERING AND TECHNOLOGY  (Autonomous, Accredited by NAAC with ‘A’ Grade)  *Model paper 2*  **B.Tech VI Semester Regular Examinations, June 2023**  **SMART GRID TECHNOLOGIES**  ***(CSD)***  **Note:** **1. This question paper contains two parts A and B.**  **2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.**  **3. Part B consists of 5 Units. Answer any one full question from each Unit.**  **4. Each question carries 10 marks and may have a, b, c, d as sub questions.** | | | | |
| Part-A | | | | |
| **All the following questions carry equal marks (10x2M=20 Marks)** | | | Bloom's Taxonomy Level | Course Outcomes |
| 1 | | Define Automatic Meter Reading(AMR)? | L1 | CO1 |
| 2 | | What is Feeder Automation? | L1 | CO1 |
| 3 | | What is Smart storage like Battery? | L2 | CO1 |
| 4 | | What is phase Measurement Unit(PMU)? | L1 | CO1 |
| 5 | | Define Captive power plants? | L1 | CO2 |
| 6 | | List out the benefits Plastic & Organic  solar cells? | L2 | CO1 |
| 7 | | List out the Power Quality Conditioners? | L2 | CO1, CO2 |
| 8 | | Define EMC in Smart Grid? | L1 | CO1, CO2 |
| 9 | | Define Cyber Security for Smart Grid? | L2 | CO1,CO2 |
| 10 | | What is Advanced Metering Infrastructure (AMI)? | L1 | CO1,CO2 |
| Part-B | | | | |
| **Answer All the following questions. ( 5** **X 10M =50Marks)** | | | Bloom's Taxonomy Level | Course Outcomes |
| 11 | Define the Concept of Robust & Self Healing Grid Present  development & International policies in Smart Grid? | | L2 | CO3 |
|  | **OR** | |  |  |
| 12 | Explain about Vehicle to Grid, Smart Sensors? | | L2 | CO1 |
| 13 | Explain about Pumped Hydro system? | | L3 | CO1 |
|  | **OR** | |  |  |
| 14 | Explain about Wide Area Measurement System(WAMS)? | | L3 | CO1 |
| 15 | Explain about Integration of renewable energy sources? | | L3 | CO2 |
|  | **OR** | |  |  |
| 16 | What is the need & applications of micro-grid? | | L2 | CO1 |
| 17 | Explain in detail about Web based  Power Quality monitoring? | | L3 | CO1,CO2 |
|  | **OR** | |  |  |
| 18 | Explain about the Power Quality issues of Grid connected  Renewable Energy Sources? | | L3 | CO1,CO2 |
| 19 | Explain about Wireless Mesh Network Wireless Mesh Network? | | L3 | CO1,CO2 |
|  | **OR** | |  |  |
| 20 | Explain Basics of CLOUD Computing & Cyber Security for Smart Grid? | | L2 | CO1,CO2 |

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| R20 Regulation Subject code: C25OE5   |  | | --- | |  |   TKR COLLEGE OF ENGINEERING AND TECHNOLOGY  (Autonomous, Accredited by NAAC with ‘A’ Grade)  *Model paper 3*  **B.Tech VI Semester Regular Examinations, June 2023**  **SMART GRID TECHNOLOGIES**  ***(CSD)***  ***Maximum Marks: 70*** Duration: 3 hours  **Note:** **1. This question paper contains two parts A and B.**  **2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.**  **3. Part B consists of 5 Units. Answer any one full question from each Unit.**  **4. Each question carries 10 marks and may have a, b, c, d as sub questions.** | | | | |
| Part-A | | | | |
| **All the following questions carry equal marks (10x2M=20 Marks)** | | | Bloom's Taxonomy Level | Course Outcomes |
| 1 | | Define Smart Grid? | L1 | CO1 |
| 2 | | Give four examples of smart appliances? | L2 | CO1 |
| 3 | | Define Geographic Information Systems(GIS)? | L1 | CO1 |
| 4 | | Give four applications of IED’s | L2 | CO1 |
| 5 | | Difference between fuel-cells and Solar cells in two points? | L1 | CO1 |
| 6 | | List out the benefits Plastic & Organic  solar cells? | L2 | CO1 |
| 7 | | List out the Power Quality Conditioners? | L1 | CO1, CO2 |
| 8 | | Define EMC in Smart Grid? | L1 | CO1, CO2 |
| 9 | | Define Cyber Security for Smart Grid? | L1 | CO1,CO2 |
| 10 | | What is Advanced Metering Infrastructure (AMI)? | L1 | CO1,CO2 |
| Part-B | | | | |
| **Answer All the following questions.** (**10M X 5=50Marks)** | | | Bloom's Taxonomy Level | Course Outcomes |
| 11 | What is the Need of Smart Grid in present generation? | | L2 | CO1 |
|  | **OR** | |  |  |
| 12 | Explain about the Plug in Hybrid Electric Vehicles(PHEV)? | | L3 | CO1 |
| 13 | Explain the concept of Concept Intelligent Electronic Devices(IED) & their applications for monitoring& protection | | L3 | CO1 |
|  | **OR** | |  |  |
| 14 | Explain about the Wide Area Measurement System(WAMS)? | | L3 | CO1 |
| 15 | Explain the Concept of micro-grid? | | L2 | CO1 |
|  | **OR** | |  |  |
| 16 | What is the need & applications of micro-grid? | | L2 | CO1 |
| 17 | Explain in detail about Web based  Power Quality monitoring? | | L3 | CO1,CO2 |
|  | **OR** | |  |  |
| 18 | Explain about the Power Quality issues of Grid connected  Renewable Energy Sources? | | L2 | CO1,CO2 |
| 19 | Explain about Wireless Mesh Network Wireless Mesh Network? | | L2 | CO1,CO2 |
|  | **OR** | |  |  |
| 20 | Explain Basics of CLOUD Computing & Cyber Security for Smart Grid? | | L2 | CO1,CO2 |

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| R20 Regulation Subject code: C25OE5   |  | | --- | |  |   TKR COLLEGE OF ENGINEERING AND TECHNOLOGY  (Autonomous, Accredited by NAAC with ‘A’ Grade)  *Model paper 4*  **B.Tech VI Semester Regular Examinations, June 2023**  **SMART GRID TECHNOLOGIES**  ***(CSD)***  ***Maximum Marks: 70*** Duration: 3 hours  **Note:** **1. This question paper contains two parts A and B.**  **2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.**  **3. Part B consists of 5 Units. Answer any one full question from each Unit.**  **4. Each question carries 10 marks and may have a, b, c, d as sub questions.** | | | | | |
| **Part-A** | | | | | |
| **All the following questions carry equal marks (10x2M=20 Marks)** | | | | Bloom's Taxonomy Level | Course Outcomes |
| 1 | | Define Automatic Meter Reading(AMR)? | | L1 | CO2 |
| 2 | | What is Feeder Automation? | | L1 | CO1 |
| 3 | | What is Smart storage like Battery? | | L2 | CO1 |
| 4 | | What is phase Measurement Unit(PMU)? | | L2 | CO1 |
| 5 | | Define Captive power plants? | | L1 | CO1 |
| 6 | | Define Power Quality Audit? | | L1 | CO1 |
| 7 | | Give four Power Quality issues of Grid? | | L2 | CO1, CO2 |
| 8 | | Define EMC? | | L2 | CO1, CO2 |
| 9 | | Expand HAN and NAN? | | L1 | CO1,CO2 |
| 10 | | What are the Basics of CLOUD Computing? | | L2 | CO1,CO2 |
| **Part-B** | | | | | |
| **Answer All the following questions.** (**10M X 5=50Marks)** | | | Bloom's Taxonomy Level | | Course Outcomes |
| 11 | Define the Concept of Robust & Self Healing Grid Present  development & International policies in Smart Grid | | L3 | | CO1,CO2 |
|  | **OR** | |  | |  |
| 12 | Explain about Vehicle to  Grid, Smart Sensors? | | L3 | | CO1 |
| 13 | Explain Pumped  Hydro system? | | L2 | | CO1 |
|  | **OR** | |  | |  |
| 14 | Explain about Wide Area Measurement System(WAMS)? | | L3 | | CO1 |
| 15 | Explain about Integration of renewable energy sources? | | L2 | | CO1 |
|  | **OR** | |  | |  |
| 16 | Explain about Variable speed wind generators? | | L3 | | CO1 |
| 17 | What are the Power Quality issues of Grid connected  Renewable Energy Sources? | | L2 | | CO1,CO2 |
|  | **OR** | |  | |  |
| 18 | Discuss in detail about Power Quality Audit? | | L2 | | CO1,CO2 |
| 19 | Difference between Network(NAN), Wide Area Network (WAN), Bluetooth, ZigBee in four points? | | L3 | | CO1,CO2 |
|  | **OR** | |  | |  |
| 20 | Explain Broadband over  Power line (BPL)? | | L2 | | CO1,CO2 |