

Subject Code: 16OE4053

AR-16

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, January-2020

POWER QUALITY MANAGEMENT

(Open Elective-V)

Time: 3 Hours

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the Question must be answered at one place

UNIT-I

1. Define electrical power quality .What are the power quality issues we come across in electrical power systems, discuss briefly? 14M

(OR)

2. Discuss electrical power quality vs. equipment immunity in detail? 14M

UNIT-II

- 3 List out common power frequency disturbances in electrical power system & Explain these disturbances briefly? 14M

OR

- 4 What is the principle of operation of an isolation transformer? 14M
Explain its construction with suitable diagram? Write some of its applications?

UNIT-III

- 5 a) What are the different types and causes of transients in electric power systems? 7M
b) Explain the atmospheric cause of transients with necessary diagram? 7M

OR

- 6 Define power factor in an electric power system? Discuss the methods of improving power factor in electrical power system with suitable diagrams? 14M

UNIT-IV

- 7 Define harmonics in electric power system? Mention the causes of voltage & current harmonics & how to mitigate the problems caused by harmonics? 14M

OR

- 8 Compare individual and total harmonic distortions with a suitable example? 14M

UNIT-V

- 9 Write short notes on: 7M

a) DataLoggers

b) ChartRecorders

7M

OR

- 10 Mention the different power quality measurement devices used in electric power system with suitable diagrams? 14M

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SET-1

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

IV B.Tech I Semester Supplementary Examinations, January-2020

FUNDAMENTALS OF ROBOTICS

(Open Elective)

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the Question must be answered at one place

Time: 3 Hours

Max Marks: 70

UNIT-I

1. a) What are the different types of automation? Explain them with examples. 7
- b) What are the different types of the end effectors of a robot and explain them? 7

(OR)

2. Classify robot by coordinate system, and explain any two coordinate systems with neat sketch. 14

UNIT-II

3. a) List the advantages and disadvantages of Pneumatic manipulators. 4
- b) Discuss hydraulic actuators used for robots? 10

(OR)

4. Briefly explain the working principle of any two types of position sensors with neat sketch. 14

UNIT-III

5. a) What are the properties of Transformation matrix? 5
- b) The coordinates of point P in frame{1} are $[3 \ 2 \ 1]^T$. The position vector P is rotated about z-axis by 45° . Find the coordinates of Q, the new position of point P. 9

(OR)

6. A point $P(7,3,2)^T$ is attached to frame{1} and subjected to rotation of 90° about z-axis followed by rotation of 90° about y-axis followed by translation of $[4,-3,7]$. Find the coordinates of point relative to the reference frame at the conclusion of transformations. 14

UNIT-IV

7. a) Write a short note on teach pendant method. 4
- b) Write a note on lead-through programming method and write down their advantages and disadvantages 10

(OR)

8. Briefly explain offline programming method and write down advantages over online programming. 14

UNIT-V

9. a) List out the applications of Robots in manufacturing. 4
- b) Briefly explain robot application in machining. 10

(OR)

10. What are the applications of robots in material transfer and processing and explain them? 14

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SET-1

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

IV B.Tech I Semester Supplementary Examinations, January-2020

BASICS OF MOBILE COMMUNICATIONS

(Open Elective)

Time: 3 Hours

Max Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

- | | | |
|----|--|------|
| 1. | Explain the limitations of conventional mobile telephone system | 14 M |
| | (OR) | |
| 2. | Describe the three categories that specifies the performance criteria of a cellular system | 14 M |

UNIT-II

- | | | |
|-------|---|------|
| 3. | Explain the point to point propagation model(Lee model) | 14 M |
| | (OR) | |
| 4. a) | Explain different signal propagation models | 7 M |
| b) | Write the details of signal loss in foliage environment | 7 M |

UNIT-III

- | | | |
|-------|---|------|
| 5. a) | Define handoff and explain different types of handoff | 7 M |
| b) | Explain about dropped call rate | 7 M |
| | (OR) | |
| 6. | Write the details of various mobile antennas | 14 M |

UNIT-IV

- | | | |
|-------|---|------|
| 7. | Write different channel assignment techniques | 14 M |
| | (OR) | |
| 8. a) | Explain different types of setup channels | 7 M |
| b) | Write the differences between frequency management and channel assignment | 7 M |

UNIT-V

- | | | |
|--------|-------------------------------------|------|
| 9. | Explain architecture of GSM network | 14 M |
| | (OR) | |
| 10. a) | Explain the services offered by GSM | 7 M |
| b) | Write about TDMA | 7 M |

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SET-2

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

IV B.Tech I Semester Supplementary Examinations, January-2020

INTRODUCTION TO DBMS

(Open Elective)

Time: 3 Hours

Max Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Differentiate between File Systems and Database systems. 7M
b) Explain the different Data Models in DBMS. 7M
- (OR)
2. With a neat diagram, explain the structure of Database Management System. 14M

UNIT-II

3. a) Discuss in detail about the concepts of ER model with suitable examples. 7M
b) Write and explain the structure of SQL SELECT, INSERT and DELETE statements with suitable example. 7M
- (OR)
4. a) Write a short notes on i) Unique key ii) Primary key iii) Foreign Key 6M
b) Write short notes on i) Attribute ii) Entity iii) Derived attribute iv) Multi-valued attribute v) Composite attribute 8M

UNIT-III

5. a) Differentiate Nested and correlated query processing with example. 7M
b) What is join operation? Explain different types of operations 7M
- (OR)
6. a) Explain logical operators in SQL with example. 7M
b) Explain the importance of Null values in Relational Model. 7M

UNIT-IV

7. a) What is meant by the functional dependencies? Illustrate functional dependencies with an example. 6M
b) State 1NF, 2NF & 3NF and explain with examples. 8M
- (OR)
8. a) What is normalization? Explain its advantage. 7M
b) What is decomposition? Explain loss less decomposition with example. 7M

UNIT-V

9. a) What is transaction? Explain briefly transaction states with diagram. 7M
b) Write short notes on i) Schedule ii) Serializability iii) Concurrent execution 7M
- (OR)
10. What is File organization? Write short note on comparison of File organizations. 14M

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****IV B.Tech I Semester Supplementary Examinations, January-2020****ENTREPRENEURIAL DEVELOPMENT****(Open Elective)****Time: 3 Hours****Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Detail the Nature and Scope of Business with respect to the present trends 7
b) Explain the characteristics of an Entrepreneur 7
(OR)
2. a) Describe the role of Entrepreneurship in Economic development 7
b) Critically evaluate the future of Entrepreneurship in India 7

UNIT-II

3. a) Detail the environmental factors effecting entrepreneurship 7
b) Explain the nature and development of Entrepreneurship in India 7
(OR)
4. a) Explain any three Institutions supporting for EDP with their promotions and schemes 7
b) What are all the problems and remedies of women Entrepreneurship 7

UNIT-III

5. a) Portray the steps to start an MSME and describe how the process is to be done 7
b) Explain the Meaning of a project with its importance for a new entrepreneur 7
(OR)
6. a) Critically evaluate the Project selection while planning for a report 7
b) Prepare a sample project report of any product or service of your choice 7

UNIT-IV

7. a) Explain MSME Development Act-2006 in detail 7
b) Explain the sources of short term and long term capital including Venture capital 7
(OR)
8. a) Detail the Role of SIDBI in developing entrepreneurship in India 7
b) Elucidate AP Industrial policy (2015-20) 7

UNIT-V

9. a) Explain the types of Ownership in detail 7
b) What are all the marketing management aspects to be taken into consideration for entrepreneurship 7
(OR)
10. a) What is TQM and explain its importance in the production of a product. 7
b) Explain Problems of MSME in India 7

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SET-2

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

IV B.Tech I Semester Supplementary Examinations, January-2020

INTRODUCTION TO WIRELESS NETWORKS

(Open Elective)

Time: 3 Hours

Max Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Explain about traffic routing in wireless networks 7M
b) Explain about i) Infrared Wireless LAN ii) Spread spectrum Wireless LAN 7M
(OR)
2. a) Explain about evolution of wireless communication systems. 7M
b) Distinguish fixed and wireless telephone networks. 7M

UNIT-II

3. a) Explain about any two different wireless data services. 7M
b) Explain the basic concepts of ISDN with necessary diagram. 7M
(OR)
4. a) Explain about Protocol architecture of SS7. 7M
b) Explain about Base band layer specifications of Bluetooth. 7M

UNIT-III

5. a) Explain about Mobile IP and its working with neat diagrams. 7M
b) Explain about concept of Tunnelling in mobile IP 7M
(OR)
6. a) Explain about wireless application protocol Architecture 7M
b) Explain about Wireless Session Protocol 7M

UNIT-IV

7. a) Explain about 802.11 medium access control layer 7M
b) Explain about 802.11 physical layer 7M
(OR)
8. a) Explain about the architecture of IEEE 802.11 7M
b) Explain about services of IEEE 802.11 7M

UNIT-V

9. a) Explain about types of HIPERLAN s. 7M
b) Explain about architecture of HIPERLAN 1. 7M
(OR)
10. a) Explain about basic architecture of WATM Network. 7M
b) Explain about protocol entities in WATM 7M

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SET-2

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

IV B.Tech I Semester Supplementary Examinations, January-2020

**RENEWABLE ENERGY
(Electrical & Electronics Engineering)**

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) Distinguish between extra terrestrial and terrestrial solar radiation
b) What are instruments used to measure the solar radiation?
c) Define photovoltaic energy conversion?
d) Classify the solar energy storage systems.
e) Give the classification of wind turbines.
f) Define fermentation?
g) List the types of Geothermal wells?
h) Define Lambert's law in OTEC.
i) Define Peltier effect.
j) List the applications of fuel cells.

PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

2. a) What is the significance of solar radiation measurement? **4M**
b) Explain with neat diagram the types of instruments employed for solar radiation measurements **8M**
- (OR)**
3. a) Explain the significance and environmental impact of renewable energy resources **6M**
b) Write a short notes on electricity from solar energy **6M**

UNIT-II

4. a) List different types of collectors. Explain with neat diagram the focussing type of collectors. **6M**
b) Write short notes on compound parabolic collector. Write its advantages and disadvantages **6M**
- (OR)**
5. a) Write the advantages of solar energy storage. Explain the Sensible and latent heat storage system **6M**
b) List the applications of solar energy. Write a short notes on photovoltaic energy conversion **6M**

UNIT-III

6. a) Describe briefly the classification of Wind energy conversion systems? **6M**
b) Define coefficient of performance of wind turbine. Draw the typical performance characteristics of wind machines. **6M**

(OR)

7. a) What are the different forms of bio conversion **6M**
b) Write a short notes on utilization of biogas **6M**

UNIT-IV

8. a) Explain the liquid dominated hydro thermal convective systems **6M**
b) Write a short notes on potential of geothermal power in India **6M**

(OR)

9. a) Explain the principle of operation closed or Anderson cycle OTEC system **6M**
b) Write a short notes on mini hydro power plant **6M**

UNIT-V

- s a) Define the following terms in thermoelectric power conversion.(i) Seebeck effect **6M**
(ii) Peltier effect (iii) Thompson effect
b) Describe the basic principle of operation of MHD generator **6M**

(OR)

11. a) Describe an MHD closed cycle system with its advantages and disadvantages **8M**
b) Give the classification of fuel cells **4M**

AR13

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SET-1

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

IV B.Tech I Semester Supplementary Examinations, January-2020

WIRELESS COMMUNICATION NETWORKS

(ELECTIVE-II)

(Electronics & Communication Engineering)

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

- | | | |
|-------|---|---|
| 1. a) | Draw TDMA Frame structure. | 1 |
| b) | What are the limitations of wireless networking? | 1 |
| c) | What are the applications of B-ISDN? | 1 |
| d) | What is the role of WLL technology? | 1 |
| e) | What are the components of mobile IP network? | 1 |
| f) | What are the features of wireless transport layer security. | 1 |
| g) | Draw the generic MAC frame format | 1 |
| h) | What is the importance of colour codes in CDPD? | 1 |
| i) | What are the requirements for HIPERLAN-1 | 1 |
| j) | Draw WATM protocol stack | 1 |

PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

- | | | |
|-------------|--|---|
| 2. a) | Explain the term interference in the frequency, time, code and space domains. What are the countermeasures to avoid such problems in FDMA, TDMA, CDMA & SDMA. | 6 |
| b) | In a slotted ALOHA system, the packet arrival times form a Poission process having a rate 10^3 packets/sec. If the bit rate is 10Mbps and there are 1000 bits/packet. Find,
(i) The normalized throughput of the system and
(ii) The normalized bits per packet that will maximize the throughput. | 6 |
| (OR) | | |
| 3. a) | What are the advantages of packet switching approach over circuit switching? Explain. | 6 |
| b) | Write a note on Spread Spectrum LANs Hub Configuration and Peer-to-Peer Configuration. | 6 |

UNIT-II

- | | | |
|-------------|---|---|
| 4. a) | Draw the block schematic of CDPD network. Mention the Link layer characteristics of this network. | 6 |
| b) | Explain Frequency hopping mechanism in Bluetooth. | 6 |
| (OR) | | |
| 5. a) | Briefly explain the services offered by SS7. | 6 |
| b) | What is flow specification? Write a note on the parameters associated with it. | 6 |

UNIT-III

6. a) Explain the concept of tunnelling in mobile IP. 6
b) Write a short note on wireless datagram protocol. Also explain its services. 6
(OR)
7. a) Explain the Operation of Wireless Application Protocol network with an example 8
b) What problems of HTTP can WSP Solve? Explain why these solutions are needed in wireless mobile environment. 4

UNIT-IV

8. a) What are the differences between LLC Protocol and HDLC. 6
b) Explain the uplink and downlink data transfer in GPRS. 6
(OR)
9. a) List and briefly define IEEE 802.11 Services. 6
b) Discuss about the layered protocol architecture for SMS. 6

UNIT-V

10. a) What are the major challenges in implementing WATM that did not exist for data oriented Ethernet like IEEE 802.11? 6
b) Explain different methods for communication between mobile and fixed terminals. 6
(OR)
11. a) Define HIPERLAN. Explain the overall architecture of HIPERLAN-1. 6
b) Explain the interference of Bluetooth with FHSS 802.11 6