

AR13

CODE: 13EE4025

SET-1

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

IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MARCH-2017

HIGH VOLTAGE ENGINEERING

(Elective-II)

(Electrical & Electronics Engineering)

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) What is the governing equation for potential V for triangular element in FEM?
b) State paschen's LAW
c) What is meant by commercial liquid?
d) Name the various breakdown mechanism of solid dielectrics
e) Write advantages of generating voltmeter
f) Define front and tail times of an impulse wave
g) What is meant by complex permittivity
h) Define withstand voltage
i) Write two applications of pulsed power
j) Write any two methods for testing surge arresters

PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

2. a) Discuss relative advantages and disadvantages of different numerical methods for solution of field problems 6M
b) Explain how electric field intensity controlled 6M
(OR)
3. What is finite element method? Give the outline of this method for solving the field problems. 12M

UNIT-II

4. Explain various primary ionization processes of Townsend's mechanism. Derive an expression for current growth due to the processes 12M
(OR)
5. a) Explain the breakdown mechanism in composite dielectrics 6M
b) Explain the phenomena of thermal break down in solid dielectrics 6M

UNIT-III

6. a) Draw a typical impulse current generator circuit and explain its operation and application 6M
b) Discuss why three electrode gaps are required for impulse generator 6M
(OR)
7. Explain the principle of operation of an electrostatic voltmeter for very high Voltages with neat construction. What are its merits and demerits for high voltage a.c measurements? 12M

UNIT-IV

8. Explain how partial discharges in an insulation system or equipment can be detected and displayed 12M
(OR)
9. What are different power frequency and impulse test done on insulators? Mention the procedure for testing? 12M

UNIT-V

10. With a neat diagram explain the electrostatic precipitator used for charging of dust particles in a gas and their subsequent separation under the effect of high electric field. 12M
(OR)
11. Explain the principle of electrostatic coating or painting .Discuss its applications in HV engineering 12M

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CODE: 13EC4031 **SET-1**
ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MARCH-2017

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) Compare SDMA with CDMA.
b) Define Guard band.
c) What are the differences between the implementation of paging and inquiry algorithms in Bluetooth?
d) What is the maximum data rate of an overlay Bluetooth network?
e) What is Tunneling?
f) Define WAP Architecture
g) What is the difference between full-duplex and half-duplex CDPD operations?
h) What are the MTP, PTP and SMS?
i) Which WLAN standard first adopted the 5GHz band operation?
j) Mention the similarities between HIPERLAN-1 and IEEE 802.11.

PART-B

Answer one question from each unit

[5 x 12=60M]

UNIT-I

2. a) The original GSM design uses 25 MHz of bandwidth for the uplink and for the downlink. This bandwidth is divided into 125 TDMA channels of 200 KHz each. Each TDMA channel consists of 8 user timeslots: the 8 timeslots along with a preamble and trailing bits form a frame, which is cyclically repeated in time. Find the total number of users that can be supported in the GSM system and the channel bandwidth of each user. 6M
b) Explain FDMA and TDMA with neat diagrams 6M
- (OR)**
3. a) Compare SDMA and FDMA with suitable applications. Explain scheduling and power control. 6M
b) Explain with necessary diagrams the multiuser channels. 6M

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UNIT-II

4. a) Discuss about the security aspects in the Bluetooth. 6M
b) What are the elements in the core protocols? 6M

(OR)

5. a) Discuss about Bluetooth usage models. 6M
b) Name the four states that a Bluetooth terminal can take & explain the differences among these states. 6M

UNIT-III

6. a) Discuss the important capabilities of WML scripts. 6M
b) Draw the programming model for WAP and explain its functioning. 6M

(OR)

7. a) Explain the operation of mobile IP. 6M
b) Write short notes on wireless datagram protocol. 6M

UNIT-IV

8. a) With a neat diagram explain IEEE802.11 Architecture. 6M
b) Explain BSS and ESS configuration of IEEE 802.11 WLAN. 6M

(OR)

9. a) Explain the handoff procedure in CDPD with neat diagram. 6M
b) What are the duties of SGSN and GGSN in GPRS? 6M

UNIT-V

10. a) Explain the general differences between the packet format of the ATM and WATM. 6M
b) Consider the HIPERLAN-2 standard that uses BPSK and $r = \frac{3}{4}$ codes for 9 Mbps information transmission and 16-QAM with the same coding for the actual payload data transmission rate of 36 Mbps 6M

(i) Calculate the coded symbol transmission rate per subcarrier for each of the two modes. What is the bit transmission rate per subcarrier for each of the two modes?

(ii) If one switches from 36 Mbps mode to 9 Mbps mode. How much more (in dB) of the path-loss can it afford?

(OR)

11. a) How is priority implemented in HIPERLAN and what is its difference from the priority schemes in the IEEE 802.11 and HIPERLAN-2? 6M
b) Explain the architectural differences between HIPERLAN and IEEE 802.11. 6M