TED (15) – 3041

(REVISION — 2015)

Reg. No. 15200461

Signature

# THIRD SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/ TECHNOLOGY — APRIL, 2017

## COMMUNICATION ENGINEERING

(Common for EL and EC)

[*Time* : 3 hours

(Maximum marks : 100)

### PART — A

(Maximum marks : 10)

Marks

I Answer the following questions in one or two sentences. Each question carries 2 marks.

1. Define Skip Distance.
2. What is MANET ?
3. Calculate the Bandwidth if a carrier is modulated by 10 KHz modulating signal in an AM .
4. List any 2 applications of FM.
5. Define Noise Figure in radio receivers.

(5×2 = 10)

### PART — B

(Maximum marks : 30)

II Answer *any five* questions from the following. Each question carries 6 marks.

1. Explain parabolic antenna with figure.
2. Compare AM and FM.
3. What are different digital carrier modulation techniques ?
4. A carrier of 100 KHz is modulated by a sine wave of 3 KHz. Draw the frequency spectrum of modulated wave. Also calculate the bandwidth needed.
5. Describe AFC.
6. State the need of limiter in FM receiver.
7. Explain a simple envelope detector for AM demodulation.

(5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

(Answer *one full* question from each unit. Each full question carries 15 marks.)

UNIT — I

III (a) Explain different polarisations of EM waves. 9

(b) With radiation pattern explain half wave dipole. 6

OR

IV Write short notes on : 15

(a) Skip distance

(b) Maximum usable frequency

(c) Virtual height

UNIT — II

V (a) Explain AM giving appropriate figures and derive the expression for modulation index. 10

(b) Discuss the advantages and disadvantages of SSB transmission. 5

OR

VI (a) Illustrate AM generation using collector modulation with a neat sketch. 8

(b) Explain PWM and PPM. 7

UNIT — III

VII (a) Explain with a block diagram of direct method of FM generation. 8

(b) Define signal to noise ratio and what is its significance. 7

OR

VIII (a) Draw the block diagram of AM transmitter and explain each block. 8

(b) Explain pre emphasis and de emphasis. 7

UNIT — IV

IX (a) Explain simple AGC and delayed AGC in radio receivers. 8

(b) Explain sensitivity and selectivity of radio receivers. 7

OR

X (a) Describe the operation of FM receiver with block diagram. 10

(b) A super heterodyne receiver receives a radio frequency of 540 kHz. Calculate the image frequency. Make appropriate assumptions. 5

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