Reg. No..

Signature ....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2018

ELECTRONIC DEVICES AND CIRCUITS

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I   Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Write the merits of emitter follower.

2. Define resonant frequency of tank circuit.

3. Draw the symbol of N-Channel FET.

4. State the Barkhausen criteria for oscillation.

5. Write the name of high frequency oscillators.   (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. What is the need for biasing circuits ? Explain.

2. With circuit diagram, explain the operation of an emitter follower.

3. What are the importance of heat sink in power amplifier ?

4. Explain series resonance and derive the expression for frequency.

5. Draw the characteristic of JFET.

6. Derive the expression of gain of negative feedback amplifier.

7. State the conditions for RC circuits to be an Integrator.   (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 the working of RC Coupled amplifier, with neat diagram.   9

     (b) Compare different coupling schemes used in multistage amplifiers.   6

OR

IV (a) Draw and explain direct coupled amplifier and list its advantage and application.   9

     (b) In a fixed bias circuit $Rb = 1M$ ohm and $Rc = 5K$ ohm, $Vcc = 6V$, Beta = 100. Determine the Q point.   6

UNIT — II

V (a) Draw and explain the working of single tuned amplifier.   7

    (b) Distinguish between voltage and power amplifier.   8

OR

VI (a) Explain the working of class B push pull power amplifier, with neat circuit diagram.   8

     (b) A parallel resonant circuit has the following $C = 100$ pf, $L = 150$ mH (with $R = 10$ ohm) and supply voltage $V = 500$ V. Calculate resonant frequency, Q factor and bandwidth.   7

UNIT — III

VII (a) Draw and explain the circuit of a UJT relaxation oscillator and sketch the output waveforms.   7

     (b) Compare BJT and JFET.   8

OR

VIII (a) Describe the construction of a depletion type MOSFET.   7

     (b) List the different types of negative feedback circuits, Explain.   8

UNIT — IV

IX (a) Explain the working of RC Phase shift oscillator with neat diagram.   7

    (b) Explain the working of Schmitt trigger with circuit diagram and waveforms.   8

OR

X (a) Draw and explain working of Hartly oscillator.   7

    (b) List the applications of different multivibrators.   8

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