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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2019

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. List different methods of inter stage coupling in amplifiers.
 - 2. Write an expression for resonant frequency of resonant circuits.
 - 3. Define piezo electric effect.
 - 4. State Barkhausen criterion for oscillation.
 - 5. List types of negative feedback in amplifiers.

 $(5 \times 2 = 10)$

PART — B

(Maximum marks: 30)

- II Answer any five of the following questions. Each question carries 6 marks.
 - 1. Explain emitter follower with the help of diagram.
 - 2. Explain the effects of negative feedback in amplifiers.
 - 3. Compare BJT and FET.
 - 4. Explain importance of impedance matching in power amplifier.
 - 5. Draw the circuit diagram of direct coupled amplifier and explain.
 - 6. Explain importance of heat sink in power amplifier.
 - 7. Draw and explain RC differentiating circuit with waveforms.

 $(5 \times 6 = 30)$

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IV

VI

VII

VIII

IX

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(a) Draw and explain Hartley oscillator.

diagram and waveforms.

(b) Explain the operation of transistor astable multivibrator with the help of circuit

2 Marks PART — C (Maximum marks: 60) (Answer one full question from each unit. Each full question carries 15 marks.) Unit -- I (a) Explain the principle of operation of transistor amplifier in Common emitter configuration. 8 (b) Explain frequency response of RC coupled amplifier. 7 OR (a) Write expression for voltage gain, current gain, power gain, input and output impedances of common emitter amplifier. 8 (b) Draw and explain transformer coupled amplifier. 7 Unit — II (a) Draw and explain the circuit of complimentary push pull amplifier. 8 (b) Explain frequency response of single tuned amplifier and write Relation between resonant frequency, bandwidth and Q factor. 7 OR (a) Classify power amplifiers with the help of proper diagrams. 8 (b) Draw and explain single tuned amplifier circuit. 7 Unit -- III (a) Derive an expression for feedback in amplifiers. 8 (b) Explain the working principle of JFET. 7 OR Explain the types of negative feedback in amplifiers with the help of diagrams. 8 (b) Draw and explain UJT relaxation oscillator. 7 UNIT - IV (a) Explain the working of RC phase shift oscillator with the help of diagram. 7 (b) Explain the working of Schmitt trigger with the help of Circuit diagram and waveforms. 8 OR