

(ENGLISH)

[TIME ALLOWED—3 HOURS]

(MARKS—100)

**ELECTRONIC & POWER ELECTRONIC DEVICES,
CIRCUITS AND APPLICATION (TH-II)***Instructions:—*(1) All questions are *compulsory*.

(2) Answer each main Question on a new page.

(3) Figures to the right indicate *full* marks.(4) Assume suitable additional data if *necessary*.**Marks**

1. (a) Fill in the blanks (*Select correct answer from the option given in the bracket*) :— 10

(i) R-C coupling is used for amplification.

- (a) voltage (b) current
(c) power (d) faithful.

(ii) is used to cool down power transistors.

- (a) heat sink (b) transistor
(c) diode (d) resistor.

(iii) Positive feedback is used in

- (a) oscillators (b) rectifier
(c) chopper (d) clamper.

(iv) diode is used as voltage regulator.

- (a) crystal (b) zener
(c) power (d) none.

(v) Filter circuit removes

- (a) a.c (b) d. c
(c) both (d) none.

(vi) In 'N' type semiconductor the current conduction is done by

- (a) holes (b) free electrons
(c) potential barrier (d) none.

(vii) The maximum efficiency of full wave rectifier is

- (a) 40% (b) 81.2%
(c) 90% (d) 100%.

(viii) The function of transistor is to do

- (a) filter (b) amplification
(c) conversion a.c to d.c. (d) zero signal.

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- (ix) Stabilization means making independent of temperature variations.
- (a) operating point (b) collector supply
(c) emitter supply (d) base supply.
- (x) A single transistor stage contains transistor.
- (a) one (b) two
(c) three (d) four.
- (b) Define the following :— 10
- (i) Forward resistance of diode. (vi) Peak inverse voltage
(ii) Power gain (vii) Ripple factor
(iii) Oscillator (viii) Voltage gain
(iv) Clamper (ix) Amplifier
(v) Forward current (x) Heat sink
2. Attempt any *two* of the following :— 16
- (a) Describe LC and PI filter.
(b) What do you understand ultrasonics? State its applications.
(c) What is transistor? Explain the operation of transistor as a switch.
3. Answer any *two* of the following :— 16
- (a) Define Amplifier. Explain the operation of transistor as an amplifier.
(b) Draw and explain the direct coupled amplifier with its advantages.
(c) What is clipper ? Describe positive clipper and biased clipper.
4. Solve any *two* of the following :— 16
- (a) Differentiate between PNP and NPN transistor.
(b) What is an audio power amplifier? Discuss class A, class B and class C power amplifier.
(c) With a neat sketch explain the working of full wave bridge rectifier.
5. Solve any *two* of the following :— 16
- (a) What is transistor biasing ? Why stabilization is needed in biasing.
(b) Explain the working of R-C Phase Shift Oscillator with the help of suitable circuit diagram
(c) What is PN junction? Explain the formation of potential barrier in PN Junction.
6. Write a short note on the following (any *four*) :— 16
- (a) Zener diode
(b) Multistage amplifier
(c) Differentiating circuit
(d) Integrating circuit
(e) Semiconductor
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