

LAD
5105709
68% : G-m.

SESEM III (Elect) (REV).

Basic Electronics.

(REVISED COURSE)

Con. 2519-09.

(3 Hours)

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[Total Marks : 100

MASTER

N.B. (1) Question No. 1 is compulsory.
(2) Attempt any four questions out of remaining six questions.

1. (a) Explain the operation of Zener diode in the forward and reverse biased condition and draw its characteristics. 10
- (b) A 100 μ f capacitor when used as a filter has 12 V dc across it with a terminal load resistor of 2.5 k ohm. If the rectifier is full wave and supply frequency is 50 Hz what is the percentage of ripple in the output ? 10
2. (a) Write a notes on :— 10
 - (i) Thermal stabilization
 - (ii) Compensation.
- (b) Explain the working of a CE BJT voltage amplifier. 10
3. (a) Draw the h-parameter model of a transistor CE amplifier and derive equation for A_v , R_i , R_o and A_i . 10
- (b) Explain the effects of negative feedback on following :— 10
 - (i) Input impedance
 - (ii) Voltage gain
 - (iii) Output impedance
 - (iv) Current gain.
4. (a) Explain the construction, characteristics and working of a typical JFET used for the voltage amplification. 10
- (b) Explain the working of biasing circuit of JFET amplifier with resistive load which will give stabilization of operating quiescent point against device variation. What will be the input impedance and output impedance for the amplifier ? 10
5. (a) Explain the operation of a photo transistor with the help of suitable diagram. 10
- (b) An amplifier with negative feedback gives an output of 12.5 V with an input of 1.5 V, when feedback is removed, it requires 0.25 V input for the same output. Find — 10
 - (i) Value of voltage gain without feedback
 - (ii) Value of β if the input and output are in phase and β is real.
6. (a) Explain the AC analysis of dual input balanced output differential amplifier. 10
- (b) Write a short notes on :— 10

(i) LED	(iii) Solar cell
(ii) Photodiode	(iv) Optoisolators.
7. (a) Explain the voltage doublers circuit with the help of suitable circuit diagram and waveform. 10
- (b) Write a short notes on any two :— 10
 - (i) Schottkey diode
 - (ii) Varactor diode
 - (iii) PIN diode.