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BIEL-027

DECVI / DELVI / DCSVI / ACECVI / ACELVI / ACSVI

Term-End Examination

December, 2015

BIEL-027 : APPLIED ELECTRONICS

Time : 2 hours *Maximum Marks : 70*

Note : *Answer **five** questions in all. All questions carry equal marks. Question number **1** is **compulsory**.*

1. (a) Negative feedback is used in

(i) Amplifiers

(ii) Oscillators

(iii) None of these

(iv) Both (i) and (ii)

(b) p-n junction diode is an active device. (True/False)

(c) Crossover distortion is removed by

(i) Class A amplifier

(ii) Class B push-pull amplifier

(iii) Class AB push-pull amplifier

(iv) Class C amplifier

(d) FET is a current controlled device.

(True/False)

(e) For sustained oscillations, AB must be

(i) Less than one

(ii) Greater than one

(iii) Equal to one

(iv) Greater than or equal to one

(f) The output waveform of Schmitt trigger is

(i) Sinusoidal

(ii) Triangular

(iii) Square

(iv) None of these

(g) Which amplifier is used in Miller bootstrap time base generator ?

(i) Common emitter

(ii) Emitter follower

(iii) Common base

(iv) None of these *7×2=14*

2. (a) Explain the operation of Class AB Push-Pull amplifier with the help of a neat diagram.

(b) Explain the operation of P-channel Enhancement Type MOSFET with the help of a suitable diagram. Also draw its drain characteristics. Explain the threshold voltage. *2×7=14*

3. (a) Discuss the advantages of negative feedback in detail.

(b) Write down the Barkhausen criterion for sustained oscillations. In a phase shift oscillator, $R_1 = R_2 = R_3 = 800\ k\Omega$ and $C_1 = C_2 = C_3 = 100\ pF$. Determine the frequency of oscillations. *2×7=14*

4. (a) Find out the V_0 for the following RC circuit, if step i/p is applied. Also draw the o/p waveform. (Figure 1)

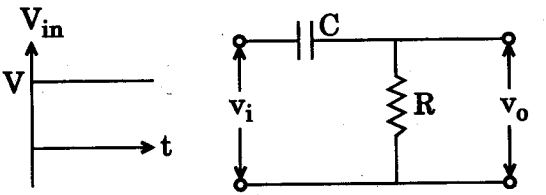

Figure 1

(b) Determine the output waveform of the network shown in Figure 2 and calculate the PIV of each diode. *2×7=14*

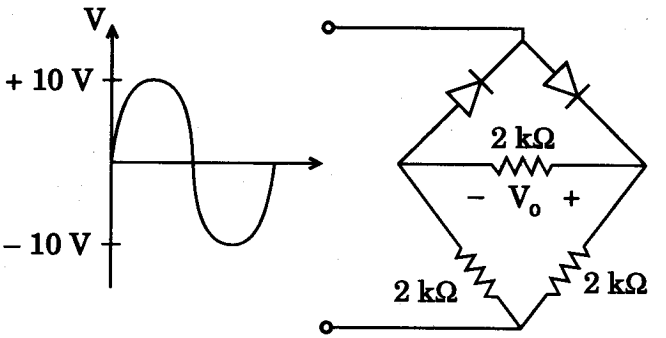

Figure 2

5. (a) Explain the operation of n-p-n transistor as a switch with the help of a suitable diagram.

(b) Explain the operation of a Bistable Multivibrator with the help of a neat diagram. Write down its applications. *2×7=14*

6. (a) Explain the operation of an exponential base generator with the help of a suitable diagram.

(b) Explain the operation of a suitable time base generator which is used in CRO. *2×7=14*

7. (a) What is the fundamental difference between Audio amplifier and Tuned amplifier ? Also explain the operation of Class A transformer coupled resistive load amplifier.

(b) Explain the operation of a Wien Bridge oscillator with the help of a neat diagram.

$2 \times 7 = 14$

8. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

(a) Tuned Amplifier

(b) Power Amplifier

(c) JFET

(d) LC Oscillator

(e) Schmitt Trigger

(f) Negative Resistance Generator

(g) Trouble-shooting of Multivibrator
