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SEAT No. _____

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SARDAR PATEL UNIVERSITY
B.Sc. (5th Semester) Examination
Monday, 22nd October 2018
10:00 a.m. to 1:00 p.m.

US05CELE01 – Discrete And Linear Circuits

Total Marks : 70

Q-1 Choose the correct answer

- 1 In the feedback amplifier, sensitivity D is equal to _____.
(a) $1+A\beta$ (b) $A\beta$ (c) $1-A\beta$
- 2 Negative feedback in an amplifier improves _____.
(a) the signal to noise ratio at the output (b) reduces distortion (c) both a and b
- 3 The phase shift oscillator is operated in _____ to keep distortion minimum.
(a) Class A (b) Class B (c) Class C
- 4 Radio frequency oscillator generates _____ range frequencies.
(a) 20 KHz to 30 MHz (b) 20 Hz to 20 KHz (c) 30 MHz to 300 MHz
- 5 In Hartley Oscillator tank circuit is made up of _____.
(a) Two coils and capacitor (b) two capacitors and a coil (c) two capacitors and two coils
- 6 To minimize the cross over distortion the transistor may be operated in _____ mode.
(a) Class A (b) Class B (c) Class AB
- 7 Complementary symmetry amplifier uses _____.
(a) Two npn transistors (b) Two pnp transistors (c) One npn and one pnp transistors
- 8 The conversion efficiency of Class B amplifier is less than _____ amplifier.
(a) Class AB (b) Class A (c) Class C
- 9 IC 723 voltage regulator can be used as a _____ regulator.
(a) linear (b) switching (c) linear or switching
- 10 Switching regulator is also called _____ convertor.
(a) dc to ac (b) dc to dc (c) ac to dc

[10]

Q-2 Answer any TEN questions in brief

- 1 State the general characteristics of negative feedback amplifier.
- 2 Define Desensitivity.
- 3 Define the amount of feedback in decibels.
- 4 What determines the frequency of oscillations in wein bridge oscillator?
- 5 State Barkhausen criteria.
- 6 Draw the circuit diagram of Hartley oscillator.
- 7 Discuss how rectification takes place in the power amplifier.
- 8 Derive the expression for conversion efficiency of Class A series fed amplifier.
- 9 State the advantages of pushpull amplifier.
- 10 Define the input regulation factor, output resistance and temperature coefficient for voltage regulator.

[20]

(1)

(P.T.O.)

- 11 Explain the three terminal IC regulator.
- 12 What is peak inverse voltage?
- Q-3 What is feedback? Draw the block diagram of feedback amplifier. Explain the function of each block [10]
- OR
- Q-3 Classify the amplifier as [10]
- | | |
|-------------------------------|-------------------------------|
| 1) voltage amplifier | 2) current amplifier |
| 3) transconductance amplifier | 4) transresistance amplifier. |
- Q-4 Draw the circuit diagram of Crystal oscillator and explain it in detail. [10]
- OR
- Q-4 Draw the circuit diagram of Phase Shift oscillator and explain it in detail. [10]
- Q-5 What is crossover distortion? How does it originate? Explain the method to reduce it. [10]
- OR
- Q-5 Draw the circuit diagram of Class A Push pull amplifier and explain it. [10]
- Q-6 Explain two applications of IC 723. [10]
- OR
- Q-6 Discuss in detail the discrete voltage regulator circuit. [10]

