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SARDAR PATEL UNIVERSITY
TY BSc (V SEM.) (CBCS) EXAMINATION
Monday, 26th November 2012
2.30 pm - 5.30 pm
US05CELC01 : Electro. & Communication
Analog Circuit Design & Its Application

Total Marks: 70

Note: Figures to the right indicate full marks.

Q.1 Choose correct answer: [10]

(1) Class AB operation is often used in power amplifier in order to _____.
(a) Overcome Distortion (b) Remove even harmonics
(c) Coet maximum efficiency (d) None

(2) In _____ Amplifier the current flows only during positive half cycle.
(a) Class AB (b) Class C
(c) Class B (d) None of these

(3) Voltage series feedback results in _____.
(a) Increase both the impedance
(b) Decrease both the impedance
(c) Increase band-width
(d) None of these

(4) The efficiency of Class B amplifier is _____ %.
(a) 65 (b) 50
(c) 78.5 (d) None of above

(5) _____ is commonly used in a local oscillator in Radio receiver.
(a) Phase shift oscillator (b) Crystal oscillator
(c) Hartly oscillator (d) None of these

(6) In a single RC network _____ phase shift obtained.
(a) =90° (b) >80°
(c) >90° (d) <90°

(7) WEIN bridge is _____ bridge.
(a) AC (b) DC
(c) AC & DC (d) None of these

(8) 555 Timer has high temperature stability that is _____.
(a) -55 to 125 degree (b) -55 to 155 degree
(c) -50 to 125 degree (d) 55 to 125 degree

(9) 555 Timer IC's available in
(a) 8 Pin DIP Package (b) 8 Pin Circular Package
(c) 14 Pin DIP Package (d) None of above

(10) Astable multivibrator has _____ stable state.
(a) 0 (b) 1
(c) 2 (d) 4

Q.2 Answer in short. **(Any Ten)** [20]

(1) Differentiate between Class A and Class AB amplifier.
(2) Define cross over distortion.
(3) What do you mean by Harmonic distortion ?
(4) State advantages of feedback in amplifier.
(5) Differentiate between Positive and Negative feedback.
(6) Discuss Miller's effect.
(7) Define an Oscillator.
(8) List out salient features of 555 IC.
(9) Define a flip-flop.
(10) Differentiate between RC and LC oscillator.
(11) Differentiate between Astable and Monostable multivibrator.
(12) Draw Pindiagram of 555 Timer IC.

Q.3

(a) List out different types of amplifiers. [03]
(b) Discuss Push-Pull amplifier in detail with necessary diagrams. [07]

OR

Q.3 What do you mean by Power amplifier? Explain working of Class A amplifier with circuit diagrams. [10]

Q.4 Derive equations for input resistance of Series voltage, Series current and Shunt voltage in feedback amplifier. [10]

OR

Q.4 Discuss concept of output resistance of different types of feed-back network in Amplifier. [10]

Q.5

(a) State principle of oscillator and discuss classification of oscillator. [04]
(b) Describe in detail construction and working of RC phase shift oscillator. [06]

OR

Q.5

(a) Discuss construction and working of Colpitt's oscillator. [06]
(b) Discuss concept of oscillator stability. [04]

Q.6 Describe constructional and working mechanism of Astable multivibrator using 555 Timer IC. State its applications. [10]

OR

Q.6 Draw functional block diagram of 555 Timer IC and discuss each section of it. [10]

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