

[39/A15]

SEAT No. \_\_\_\_\_

No. of Printed Pages : 3

**SARDAR PATEL UNIVERSITY**  
**B. Sc (6<sup>th</sup> Semester)**  
**US06CELE-01**  
**Discrete and Linear circuits Paper II**

Monday, 26/03/18  
 10.00 A.M. to 1.00 A.M.  
 Total Marks 70

**Q.1 Multiple Choice Questions:****10**

1. In order to prevent cross over distortion in output stage of OP Amp, Pushpull amplifier is used in
  - (i) Class A mode
  - (ii) Class B mode
  - (iii) Class AB mode
  - (iv) Class C mode
2. An ideal Op Amp has
  - (i) infinite input impedance
  - (ii) Zero input impedance
  - (iii) High input impedance
  - (iv) None of the above
3. In notch filter the gain at one particular frequency becomes -----
  - (i) Infinite
  - (ii) Very high
  - (iii) Very low
  - (iv) Zero
4. A comparator circuit has two inputs
  - (i) whose values are always equal
  - (ii) whose values are always different
  - (iii) whose one input is fixed and other is varying
  - (iv) All of the above
5. The cut in voltage for Ge diode is
  - (i) 0.3 V
  - (ii) 0.7 V
  - (iii) 1.5 V
  - (iv) 0.69 V
6. Which circuit cut off the voltage above or below certain level?
  - (i) Clipper
  - (ii) Clamper

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- (iii) VCO
- (iv) None of the above

7. PWM produces a train of pulses whose ----- is proportional to the amplitude of modulating signal.

- (i) frequency
- (ii) amplitude
- (iii) width
- (iv) time

8. An Antilog amplifier has ----- in series with the input

- (i) BJT
- (ii) Diode
- (iii) Diode or BJT
- (iv) UJT

9. Timer 555 is an ----- IC used to produce delay of few micro second to few minutes

- (i) Digital
- (ii) Analog
- (iii) Both analog and digital
- (iv) None of the above

10. When the VCO frequency and input signal frequency becomes equal than the PLL is said to be -----

- (i) Locked
- (ii) Capture
- (iii) Free Running
- (iv) Open

Q. 1 Answer any **Ten** questions in short.

1. Draw circuit of emitter coupled Op Amp.
2. What are the main requirements of output stage of Op-Amplifier.
3. State two differences between active and passive filters.
4. Draw different rectifier circuits.
5. State applications of Monostable multivibrator?
6. What are limitations of PN junction diode?
7. What is function of diodes D1 and D2 in antilog amplifier?
8. Combination of which circuits is used to produce PWM signal?
9. What do you understand by Pulse amplitude modulation?
10. State salient features of 555 Timer.

11. Draw the circuit of Water level control using 555 Timer.  
12. Draw pin diagram of 555 Timer and label each pin.

Q.3 List and explain all ac parameters of Op-Amplifier. 10

OR

Q.3 List and explain all DC parameters of Op-Amplifier. 10

Q.4 Explain Monostable multivibrator and obtain expression for total time period T. 10

OR

Q.4 Describe fully Schmitt trigger circuit in inverting modes of Op Amp. 10

Q.5 Explain basic logarithmic amplifier and state its disadvantages and draw circuit diagram for temperature compensated circuit. 10

OR

Q.5 What is modulation? How many types of modulation you know? Explain Pulse Width modulation in detail. 10

Q.6 Draw functional block diagram of IC 555 and explain function of each block. 10

OR

Q.6 Explain any two applications of Timer IC-555? 10

\*\*\*\*\*BEST OF LUCK \*\*\*\*\*

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