

44/A-13

SEAT No. _____

No. of Printed Pages : 3

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

Monday, 25/03/19
10.00 A.M. to 1.00 P.M.
Total Marks 70

Q.1 Multiple Choice Questions:

10

1. Active filter have gain
 - (i) less than Unity
 - (ii) greater than unity
 - (iii) infinite
 - (iv) Zero
2. An ideal Op Amp has ideally
 - (i) infinite output impedance
 - (ii) Zero output impedance
 - (iii) Low 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. For a comparator circuit using OP Amp in order to have V_{uth} and V_{lth} equal
 - (i) the supply voltage $+V_{cc}$ and $-V_{cc}$ must have same magnitude
 - (ii) the supply voltage $+V_{cc}$ and $-V_{cc}$ must have different magnitude
 - (iii) the supply voltage $+V_{cc}$ and $-V_{cc}$ must have zero magnitude.
 - (iv) None of above
5. The cut in voltage for Si diode is
 - (i) 0.3 V
 - (ii) 0.7 V
 - (iii) 1.5 V
 - (iv) 0.69 V
6. For rectification ----- is used
 - (i) transistor
 - (ii) diode
 - (iii) capacitor

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(P.T.O)

- (iv) Coil
7. A log amplifier may use the -----junction of a BJT in a feedback loop
- (i) Base emitter
 - (ii) Base collector
 - (iii) Emitter collector
 - (iv) None of the above.
8. The process known as signal compression is used with an ----- amplifier.
- (i) Log
 - (ii) Antilog
 - (iii) Instrumentation
 - (iv) None of the above
9. No triggering input is applied in ----- multivibrator.
- (i) Astable
 - (ii) Monostable
 - (iii) Bistable
 - (iv) One Shot
10. IC 555 timer operates in the temperature range
- (i) -55 C to 125 C
 - (ii) 55 C to 125 C
 - (iii) 0 C to 125 C
 - (iv) 0 C to 55 C

Q. 1 Answer any Ten questions in short.

20

1. State function of buffer and level shifter of Op-Amp.
2. List dc parameters of Op-Amp.
3. What are filters? How many types of filters you know? Name them.
4. What are limitations of PN junction diode?
5. Define Acquisition time.
6. State applications of Monostable multivibrator.
7. Combination of which circuits is used to produce PWM signal?
8. What are disadvantages of log amplifier?
9. What is expression for forward current of diode?
10. Give some salient features of timer 555.
11. Draw the circuit of Water level controller using 555 timer?
12. Draw the pin diagram of 555 timer and label each pin?

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

10

OR

Q.3 Explain any two applications of non-inverting mode of Op-Amp.

10

(2)

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 Explain analog voltage multiplier and divider circuit using Op-Amp. 10

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

OR

Q.6 Explain how Astable multivibrator can be used for square wave generator and voltage control oscillator using 555 Timer. 10

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



