1191

Code : 15EC31T

Register Number | | | | | | | |

III Semester Diploma Examination, Nov./Dec. 2017

ANALOG ELECTRONICS CIRCUITS

Time : 3 Hours] **[Max. Marks : 100**

Note : (i) Answer any **SIX** Questions from **PART-A**. (5 × 6 = 30 marks)

(ii) Answer any **SEVEN** full Questions from **PART-B**. (7 × 10 = 70 marks)

PART-A

1. Define regulator & explain the need for voltage regulators in power supplies. **5**

2. Show mathematically the ripple factor of a bridge rectifier is 0.48. **5**

3. Define Amplification, gain, frequency response, bandwidth & Li/P impedance as applicable to amplifier. **5**

4. Explain the principle of transistor as an amplifier. **5**

5. List the applications of op-amp. **5**

6. Sketch op-amp. voltage follower ckt. & explain it. **5**

7. Define active filter & mention its classification. **5**

8. Compare clipper & clamping circuit. **5**

9. Discuss the role of tank circuit in oscillator circuit. **5**

PART-B

10. Define UPS. With a neat block diagram explain the working principle of online & offline UPS. **10**

11. (a) Explain the operation of center tapped full wave rectifier with W/F's. **5**
    (b) Explain the SMPS with a neat block diagram. **5**

12. (a) Define operating pt & describe the role of DC load line to locate it. **5**
    (b) Explain the working of class-A series fed amplifier. **5**

13. (a) Establish a relationship between gains of individual stages & overall gain in a multistage amplifier. **5**
    (b) List the features of RC coupled amplifier. **5**

14. (a) Define the following terms with reference to op-amp. **5**
    (i) O/P offset voltage
    (ii) CMRR
    (iii) O/P impedance
    (iv) Gain
    (v) Slew rate
    (b) Construct and label an investing amplifier ckt. for a voltage gain of 10. **5**

15. (a) Construct Schmitt trigger ckt using op-amp. **5**
    (b) Demonstrate how op-amp can be used as a differentiator. **5**

16. (a) Describe the operation of PLL & its applications. **5**
    (b) Describe a first order butterworth LPF ckt for a gain of 10 & cut off frequency of 160 Hz. **5**

17. (a) Explain the working of instrumentation amplifier ckt. **5**
    (b) Realize the B.P.F. and B.E.F. using L.P.F. and H.P.F. **5**

18. (a) Define clamper. Explain a simple positive clamper ckt. **5**
    (b) Explain negative shunt clipper. **5**

19. (a) Draw & explain RC phase shift oscillator. **5**
    (b) Explain the working of collpitts oscillator. **5**