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**Question Paper Code : X 67560**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

Fourth Semester

Electronics and Communication Engineering

EC 1251 A – ELECTRONIC CIRCUITS – II

(Regulations 2008)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Calculate the ripple voltage of a full wave rectifier with a 100 micro Farad filter capacitor connected to a load drawing 50 mA.
2. Differentiate voltage multiplier and voltage regulator.
3. Why is quartz crystal commonly used in crystal oscillation ?
4. State Barkhausen criterion for sustained oscillation.
5. List the advantage of tuned amplifier.
6. What do you understand by Q of a parallel tuned circuit ?
7. Design an integrator to integrate a square wave of 1 MHz.
8. Give the circuit of a diode clamper.
9. Draw the electrical equivalent circuit of pulse transformer.
10. Mention any two applications of blocking oscillator.

PART – B

(5×16=80 Marks)

11. a) i) Explain the working of full wave rectifier with CLC filter and derive for its ripple factor. (12)  
ii) Compare half wave and full wave rectifier with respect to output average voltage and ripple factor. (4)  
(OR)  
b) i) Draw the circuit of a zener diode regulator and discuss how regulation is achieved. (8)  
ii) Describe how output voltage can be regulated with respect to line variations and load variations using SMPS. (8)



12. a) i) Explain RC phase shift oscillator with neat circuit diagram. Derive its frequency of oscillation. **(10)**
- ii) In a Hartley oscillator, the value of the capacitor in the tuned circuit is 500pF and the two sections of coil have inductances 38mH and 12μH. Find the frequency of oscillation and feedback factor β. **(6)**

(OR)

- b) i) Explain Colpitt's oscillator. Derive its frequency of oscillation. **(10)**
- ii) Write a note on frequency stability of oscillators. **(6)**

13. a) What is the need for neutralization ? Explain Hazeltine neutralization method. **(16)**

(OR)

- b) With frequency response characteristics, explain single tuned and stagger tuned amplifiers. **(16)**

14. a) i) Explain the working principle and transfer characteristics of bistable multivibrator. **(8)**
- ii) Draw the Schmitt trigger circuit and explain its working with the help of waveforms. **(8)**

(OR)

- b) Design a collector coupled astable multivibrator for the following specifications :  
Output voltage = 10V;  $I_C(\text{on}) = 1 \text{ mA}$ ;  $h_{FE}(\text{min}) = 100$ ;  $I_{CBO} = 0$   
Output to be a positive pulse, the duration of which is 20 micro seconds, the time between pulses to be 10 micro seconds. **(16)**

15. a) With neat circuit diagram and suitable waveforms explain astable blocking oscillator with base timing. **(16)**

(OR)

- b) Write short notes on :
- i) Voltage time base circuits. **(8)**
- ii) Current time base circuits. **(8)**
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