

B.E DEGREE EXAMINATIONS: DEC 2014

(Regulation 2013)

Second Semester

MECHTRONICS ENGINEERING

U13MCT201: Electronic Devices and Circuits

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. For which of the following superposition theorem cannot be applied?
 - a) Resistor
 - b) Capacitor
 - c) Inductor
 - d) Diode
2. The algebraic sum of the currents meeting at a junction is equal to _____.
3. The n-region of the diode is _____
 - a) Anode
 - b) Cathode
 - c) Electrode
 - d) Electrolyte
4. If the bar is of P-type, then JFET is called a _____.
5. What is the ripple factor of the half wave rectifier?
 - a) 1.21
 - b) 0.48
 - c) 0.82
 - d) 2.08
6. A circuit which provides a constant output voltage irrespective of the change in input voltage or load resistance is called _____.
7. Which circuit is known as tank circuit?
 - a) Colpits
 - b) Crystal
 - c) RC
 - d) LC
8. _____ is defined as the difference between the upper and lower cut off frequencies.
9. In which of the following amplifier, input voltage is applied in the inverting input terminal and non inverting terminal is grounded?
 - a) Inverting amplifier
 - b) Differential amplifier
 - c) Non inverting amplifier
 - d) Comparator
10. Differentiator is a _____ filter.

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

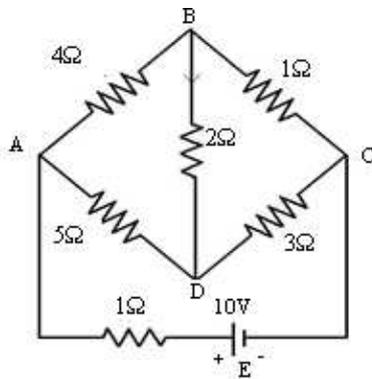
11. State Super position theorem.
12. Define Z parameters.
13. What is peak inverse voltage of PN junction diode?
14. Compare JFET and MOSFET.
15. Define voltage multiplier.
16. List the advantages of Zener regulator.
17. Why common emitter amplifiers are more popularly used?
18. Distinguish between series and shunt feedback.
19. Illustrate the ideal characteristics of Operational amplifier.
20. Classify the multivibrators.

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21. In the circuit shown, find the current through 2 ohm resistor and the total current delivered by the battery. Use kirchoff's laws.



22. a) What is meant by transistor biasing? State different types of transistor biasing and derive an expression for stability factor of fixed bias circuit.

(OR)

- b) Explain the operation of PN junction diode under forward bias and reverse bias condition with its VI characteristic curve.

23. a) Analyze the half wave rectifier with the help of circuit diagram and waveform.

(OR)

b) Explain the operation of zener diode shunt voltage regulator with neat diagram.

24. a) What are the different types of feedback connections employed in amplifier and determine the input impedance and output impedance of current series feedback.

(OR)

b) Identify the oscillator which uses inductive feedback and explain how the oscillations are maintained and derive the frequency of oscillation.

25. a) Discuss the operation of inverting and non inverting amplifier.

(OR)

b) Explain the operation of Schmitt trigger using operational amplifier.
