KUMARAGURU
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Register Number: …….

B.E DEGREE EXAMINATIONS: DEC 2014

(Regulation 2013)

Third Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U13EET303:Electronic Devices and Circuits

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The potential energy barrier in joules developed across an open circuited PN junction equals
   a) V_o b) qV_o
   c) V_o/q d) $-V_o$
2. In any PN junction _____ inversely varies with W.
3. Half wave rectifier has maximum theoretical efficiency of
   a) 50 % b) 81.2 %
   c) 78.5 % d) 40.6 %
4. _____ Rectifier has higher ripple frequency and lower ripple factor.
5. Transistor amplifier stage has lowest input impedance in :
   a) CB Configuration b) CE Configuration
   c) CC Configuration d) Same in all Configurations
6. Current gain of small-signal BJT amplifier stage is _____
7. Class B pushpull amplifier suffers from :
   a) Phase distortion b) Inter modulation distortion
   c) Crossover distortion d) Harmonic distortion
8. Crossover distortion is caused due to _____ voltage of emitter junction.
9. In FET Colpitts oscillator, frequency of oscillation ω :
   a) $\approx \omega_o$ b) $<< \omega_o$
   c) $s << \omega_o$ d) $\approx \omega_o . C_1 / (C_1 + C_2)$
10. In Negative feedback amplifier, use of _____ causes the input resistance to decrease

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. Draw the V-I characteristics of PN junction diode.
12. Define Transient capacitance.
13. Write the output voltage and Form factor equations for the half wave rectifier.
14. List out the applications of Shunt voltage regulator.
15. What are the requirements for biasing circuits?
16. Draw the Hybrid model of BJT.
17. Define differential amplifier.
18. What is meant by single tuned amplifier?
19. Define positive feedback.
20. Enumerate the applications of Crystal oscillators.

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21.		(i)	Explain in detail about the UJT structure with neat sketch	(10)
		(ii)	Give a short note on Zener diode reverse characteristics	(4)
22.	a)		Describe the working principle of Full wave diode rectifier for R load .Also derive its voltage, current, Rectification Ratio, Form Factor and Ripple Factor.	
			(OR)	
	b)	(i)	Explain the Diode clipper with appropriate circuit diagram	(7)
		(ii)	Explain the Buck converter - Switched mode power supply with neat circuit diagram	(7)
23.	a)	(i)	Describe the structure and operation of JFET with neat sketch.	(10)
		(ii)	Draw the drain and transfer characteristics of MOSFET.	(4)
			(OR)	
	b)	(i)	Draw and explain the CE configuration of BJT Model.	(7)
		(ii)	Discuss in detail about hybrid model of BJT.	(7)

24.	a)	(i)	Explain in detail about Darlington connection of differential amplifier with neat sketch.	(10)
		(ii)	Give short notes on Push-pull amplifier.	(4)
			(OR)	
	b)	(i)	With neat diagram describe the operation of transformer coupled class B amplifier.	(10)
		(ii)	Explain the neutralization methods of Large signal amplifiers	(4)
25.	a)	(i)	Describe the working principle of Hartley oscillator with neat sketch.	(10)
		(ii)	What are the advantages of Hartley Oscillator?	(4)
			(OR)	
	b)	(i)	Explain the working principle of Colpitts oscillator with neat sketch.	(10)
		(ii)	What is negative feedback? Enumerate its advantages and disadvantages	(4)

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