KUMARAGURU college of technology
character is life

Register Number:…….

B.E DEGREE EXAMINATIONS: MAY 2015

(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. How many valence electrons does a silicon atom have?
   a) 1 b) 2
   c) 3 d) 4
2. Zener diode can be used to provide _____ in a power supply
3. The dc current through each diode in a bridge rectifier equals:
   a) the load current b) half the dc load current
   c) twice the dc load current d) one-fourth the dc load current
4. A reverse biased diode will act as an _____ switch
5. When transistors are used in digital circuits they usually operate in the:
   a) active region b) breakdown region
   c) saturation and cutoff regions d) linear region
6. One advantage of voltage-divider bias is that the dependency of drain current, I_D, on the range of Q points is _____.
7. Two stages of a multistage amplifier have a gain of 50 and 20.The dB votalge gain is
   a) 101 b) 100
   c) 70 d) 1000
8. In _____ power amplifiers, the output signal varies for a full 360º of the cycle.
9. For a phase-shift oscillator, the gain of the amplifier stage must be greater than _____.
   a) 19 b) 29
   c) 39 d) 1
10. Positive feedback results in _____.

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. Illustrate the band Gap theory.
12. Write the construction of a Solar Cell?
13. Differentiate drift and diffusion current?
14. What is a clamper?
15. State the relation between 'α' and 'β' of a transistor
16. Mention any two advantages of FET over BJT
17. What is Darlington pair?
18. Define CMRR of differential amplifier
19. State Barkausen's criterion for oscillation
20. Mention the types of feedback amplifier connections.

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21. Explain the working of full wave bridge rectifier (with and without filter) with neat diagrams. Give the definition of TUF.

22. a) (i) Explain the operation of forward & reverse bias PN junction diode. (10)

(ii) Draw the characteristics curve. (4)

(OR)

b) (i) Draw the diagram of shunt & series voltage regulator & explain it. (7)

(ii) With neat diagram write short notes on SMPS? Draw the Characteristic wave form curve. (7)

23. a) Discuss in detail about hybrid model of BJT. Explain how h-parameters can be determined from the transistor characteristics.

(OR)

b) Explain the small signal model of Metal oxide semi conductor field effect transistor?

24. a) Find the frequency response of single tuned amplifier. Draw the circuit of single tuned amplifier

(OR)

b) Illustrate the concept of push pull amplifier. How it differ from class B amplifier

25. a) Explain the construction and working of phase shift & wein bridge oscillators with neat diagrams

(OR)

b) (i) Explain the general characteristics of a negative feedback amplifier. (7)

(ii) Explain with neat diagram the working of current series and current shunt feedback amplifier. (7)

****