COMMON ENRANCE EXAMINATION 1st YEAR 1st CYLCE (ENSET_BAMBILI)

Department: Electrical and Power Engineering **Session: 2013**

Option: F2 (Electronic) **Duration: 3hrs**

Paper (Major): Electronics **Coefficient: 4**

Instructions: Choose the good answer, each question carries 1mark.

1. Which is the most widely used semiconductor?
   a) Copper
   b) Germanium
   c) Silicon
   d) None of the above
2. How many protons does the nucleus of a silicon atom contain
   a) 4
   b) 14
   c) 29
   d) 32
3. How many valence electrons does a Germanium atom have?
   a) 0
   b) 1
   c) 2
   d) 4
4. In an pnp transistor, the majority carriers in the base are
   a) Free electrons
   b) Holes
   c) Neither
   d) Both
5. The nucleus of a copper atom contains how many protons?
   a) 1
   b) 4
   c) 18
   d) 29
6. Holes are the majority carriers in which type of semiconductors?
   a) Extrinsic
   b) Intrinsic
   c) N – type
   d) P – type
7. What is the barrier potential of a silicon diode at room temperature?
   a) 0.3
   b) 0.7
   c) 1V
   d) $2mV/C^0$
8. A reverse voltage of 20V is across a diode. What is the voltage across the depletion layer?
   a) 0V
   b) 0.7V
   c) 20V
   d) None of the above
9. The knee voltage of a diode is approximately equal to the:
   a) Applied voltage
   b) Barrier potential

c) Breakdown voltage
d) Forward voltage

10. If N1/N2 =2, and the primary voltage is 120V, what is the secondary voltage?
    a) 0V
    b) 36V
    c) 40V
    d) 60V
11. In a step down transformer, which is larger?
    a) Primary voltage
    b) Secondary voltage
    c) Neither
    d) No answer possible
12. We want a peak load voltage of 40V out of bridge rectifier. What is the approximate rms value of secondary?
    a) 28.28V
    b) 14.4V
    c) 28.3V
    d) 56.6V
13. If line frequency is 50Hz, the output frequency of a half wave rectifier is:
    a) 1f
    b) 50Hz
    c) 100hz
    d) 50Hz
14. If the filtered load current is 10mA, which of the following has a diode current of 10mA?
    a) Half wave rectifier
    b) Full wave rectifier
    c) Bridge rectifier
    d) Impossible to say
15. If the filter capacitance is increased, the ripple will:
    a) Decrease
    b) Stay the same
    c) Increase
    d) None of these
16. What is true about the breakdown voltage in a zener diode?
    a) It decrease when current increases
    b) It destroys the diode
    c) It equal the current times the resistance
    d) It is approximately constant
17. Which of these is the best description of a zener diode?
    a) It is a diode
    b) It is a constant current device
    c) It is constant voltage device
    d) It works in the forward region
18. A zener diode
    a) Is a battery
    b) Acts like a battery in the breakdown region
    c) Has a barrier potential of 1V
    d) Is forward biased
19. If the load resistance decreases in a zener regulator, the current:
    a) Decreases

b) Stays the same
c) Increased
d) Equals the source voltage divided by the series resistance

20. The voltage across the zener resistance is usually:
    a) Small
    b) Large
    c) Measured in volts
    d) Subtracted from the breakdown voltage