**SET I ANALOG SYSTEMS AND APPLICATIONS PAPER (C):**

**GROUP A Objective 15x 2=30**

1. For a base current of 10 µA , what is the value of collector current in common emitter if βdc = 100
2. 10 µA b) 100 µA c) 10 mA d) **1mA**
3. To prevent a DC return between source and load, it is necessary to use……..

 Ans : capacitor between source and load

1. A half wave diode circuit using an ideal diode has an input voltage 20 sin ωt volts . then average and rms value of output voltage are …… and …….

Ans: 20/π volt and 10 V.

4.the load impedence ZL of a CE amplifier has R and L in series. The phase difference between output and input will be

a) 180o b) Oo c) mor than 90o and less than 180o d) **more than 180o but** **less than 270o**

5. IN a CB amplifier the maximum efficiency could be

a) 90% b)85% c) 50% d) **25%**

6. In a pn junction diode under reverse bias, the magnitude of electric field is maximum at

a) the edge of the depletion region on the p side b) the edge of the depletion region on the n side c) **the pn junction** d) the center of the depletion region on the n side.

7. The cascade amplifier is a multistage configuration of

a) CC-CB b) **CE-CB** c) CB- CC d) CE-CC

8. Negative feedback in an amplifier

a) **reduces gain** b) increase frequency and phase distortion 3) reduces bandwidth d) increases noise

9.The current gain of a bipolar transistor drops at high frequencies because of

a) **Transistor capacitances** b) high current effect in the base c) parasitic inductive elements d) the early effect

10.Which of the following amplifier circuit using junction transistor has the best gain?

a) common base b) **common emitter** c) common collector d) all have the same gain

11. When a transistor is connected in common emitter mode, it will have

a) Negligible input resistance and high output resistance b) high input resistance and low output resistance c) **medium input resistance and high** **output resistance** d) low input resistance as well as output resistance

12.In an OP-Amp differentiator

a) **the amplitude of output is proportional to rate of change of input** b) the amplitude of output is proportional to input c) output occurs when input is finite and constant d) polarity of input and output is the same

13. In a transistor leakage current mainly depends on

a) doping of base b) size of emitter c) rating of the transistor d) **temperature**

14.Which of the following is not associated with a p-n junction

a) junction capacitance b) charge storage capacitance c) depletion capacitance d) **channel length modulation**

15.The approximate input impedance of the OP - amp circuit which has Ri=10k, Rf= 100k , RL= 10k

a) $∝$ b)120k c) 110k d)**10k**

**GROUP B VERY SHORT ANSWER TYPE 4 X 5= 20**

16. What is the use of Zener diode as a voltage regulator?

17. What are the effects of feedback?

18. What is the effect of biasing circuit on the input resistance of an emitter follower?

19.What disadvantage does a phase shift oscillator have?

**Group C Short answer type 1x 10**

20. What are the distinguish features of Hartley and Colpitts oscillator?

21. Define the following terms in connection with an Operational amplifier: CMRR

 and Slew rate.