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SIIS 69 A-2K12

B.Sc. IInd Semester Degree Examination

Electronics

Electronic Circuits

Paper - 2.3

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

1) *Answer **all** the questions from **section - A***
2) *Answer any **five** questions from **section - B***
3) *Answer any **four** questions from **Section - C.***

Section - A

1. Choose the correct answer. **(5×1=5)**

i) The current ICBO flows in
   a) The emitter, base and collector leads.
   b) The emitter and base leads
   c) The emitter and collector leads
   d) The collector and base leads.

ii) The operation of a JFET involves.
   a) A flow of minority carriers.
   b) A flow of majority carriers.
   c) Recombination.
   d) Negative resistance.

iii) If V_m is the peak voltage across the secondary of the transformer in a half - wave rectifier then the maximum voltage on the reverse biased diode is
   a) V_m
   b) $2V_m$
   c) $\frac{V_m}{2}$
   d) None.

iv) Which of the following voltage regulator is preferred for providing. Large values of Load current.

a) Zener diode shunt regulator.

b) Transistor series regulator.

c) Transistor shunt regulator.

d) None.

v) The dc load line of a transistor circuit.

a) Is a graph between I_C and V_{CE}

b) Is a graph between IC and IB

c) Is a graph between I_B and I_{BE}

d) None.

2. Fill in the blanks. **(5×1=5)**

i) The collector current is 100 mA. If the current gain is 100, the base current is ____.

ii) An improperly - biased transistor produces _____ in the output signal.

iii) The overall voltage gain of a cascaded amplifier is equal to the ____ of the gains of individual stages.

iv) The conductions angle of class- B amplifiers is _____ degrees.

v) Push-Pull operation requires two transistors of the same type with ____ characteristics.

3. State whether following statements are TRUE or FALSE. **(5×1=5)**

i) In an NPN transistor, collector is positive with respect to base.

ii) FETs have high input impedance and low output impedance.

iii) Ripple factor of a full wave rectifier is about half the value of a half wave rectifier.

iv) The purpose of biasing a circuit is to establish a proper stable dc operating point.

v) The chief merit of RC coupling is that it is inexpensive.

Section - B

Answer any **five** **(5×5=25)**

4. Explain the working PNP transistor.

5. Write the difference between BJT and FET.

6. With a neat circuit diagram explain PIV for Centre-tap FW rectifier.

7. What are *h*-parameters? Draw the hybrid equivalent circuit of a transistor in CE mode.

8. Define thermal runaway? Explain the reasons for thermal runaway.

9. Briefly explain the difference between voltage and power amplifiers.

10. Why more than one stage of amplifiers need in practical circuits. What are the different coupling schemes

Section - C

Answer **any four** **(4×10=10)**

11. With a neat circuit diagram explain the input and output characteristics of common emitter configuration.

12. a) Explain construction and I-V characteristics of UJT.

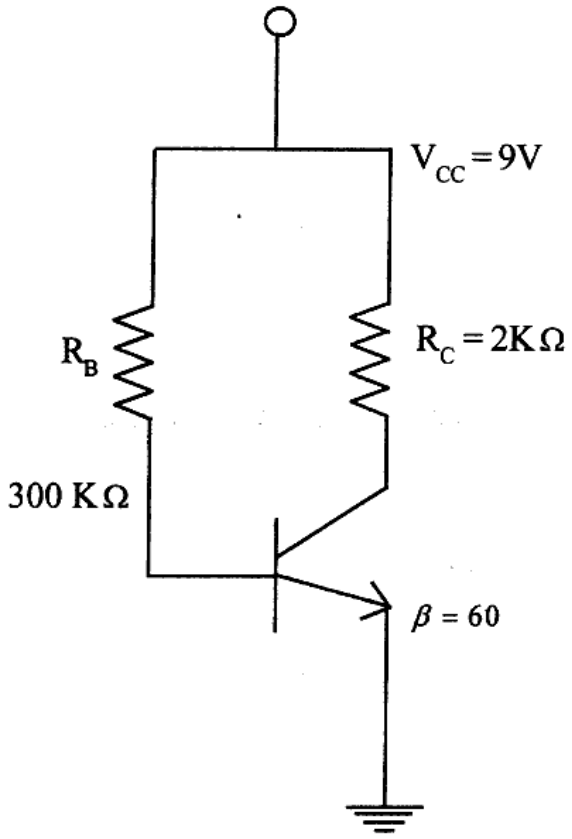
b) Derive the relation between FET Parameters. **6+4)**

13. a) With a neat circuit diagram explain bridge rectifier.

b) Show that ripple factor of full wave rectifier is 0.48. **(6+4)**

14. a) Explain fixed bias circuit without emitter resistor. What are its advantages.

b) Determine the values of I_B, I_C and V_{CE} for the given circuit. **(6+4)**



15. With a neat Circuit diagram explain the frequency response of two stage RC Coupled amplifier.

16. With a neat circuit diagram explain transformer coupled class-B push Pull amplifier. Derive an expression for its power efficiency.
