



JB-3099

Second Year B. Sc. (Sem. III) Examination

March/April – 2013

Electronics : Paper - III

(Electronic Devices & Circuits)

Time : 2 Hours]

[Total Marks : 50

Instructions :

(1)

नीचे दर्शायेव निशानीवाणी विगतो उत्तरवही पर अवश्य कर्णवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="S. Y. B. SC. (SEM. 3)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="ELECTRONICS : PAPER - 3"/>	<input type="text"/>
Subject Code No. : <input type="text" value="3"/> <input type="text" value="0"/> <input type="text" value="9"/> <input type="text" value="9"/>	<input type="text"/>
Section No. (1, 2,.....): <input type="text" value="Nil"/>	<input type="text"/>
	Student's Signature

- (2) Figures on the right indicates full marks.
- (3) All symbols and abbreviations have their usual meaning.
- (4) Non-programmable calculators are allowed.
- (5) Q.1 is compulsory.
- (6) Assume data if necessary.

1 Answer in brief : 2×7=14

- (i) What is Oscillator?
- (ii) Draw hybrid model for BJT?
- (iii) Draw the Darlington pair circuit and its application.
- (iv) Draw a Basic ac amplifier circuit using BJT
- (v) Give full form of BJT & JFET.
- (vi) Give full form of MOSFET and CMOS
- (vii) What is the difference between RC and LC oscillator?

2 (a) Explain the base-bias with emitter feedback. 6

OR

- (a) Explain LC Oscillator in detail.
- (b) In a simple tuned amplifier, the circuit bandwidth is 4kHz and the voltage gain is maximum value at 200kHz, when the tuning capacitor is adjusted to 470pF. Find quality factor of the circuit and inductance of the coil. 6

OR

- (b) Draw a elementary JFET amplifier, which has $g_m = 1900$ siemen, $r_d = 90 \text{ k}\Omega$ and $R_L = 9\text{k}\Omega$. Calculate Voltage Gain **6**
- 3** (a) Explain Thermal –Run away. What is to be done to avoid Thermal run-away in BJT amplifier? **6**
- OR**
- (a) Draw and Explain the Uni-junction Oscillator in detail. **6**
- (b) What is Piezo-electric effect? What are the advantages of Crystal Oscillator then other available oscillator. **6**
- OR**
- (b) What is a by-pass capacitor in BJT biasing circuit design and how it Stabilizes the Bias condition? **6**
- 4** Write short notes on any two : **6×2=12**
- (a) CMOS Circuit.
- (b) Voltage divider bias.
- (c) Voltage series feedback.
- (d) Phase –shift Oscillator.
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