Q.2 **a.** Explain any one of the Basic Planner process used in IC fabrication

Ans: Page – 7 to 8 of Textbook-II

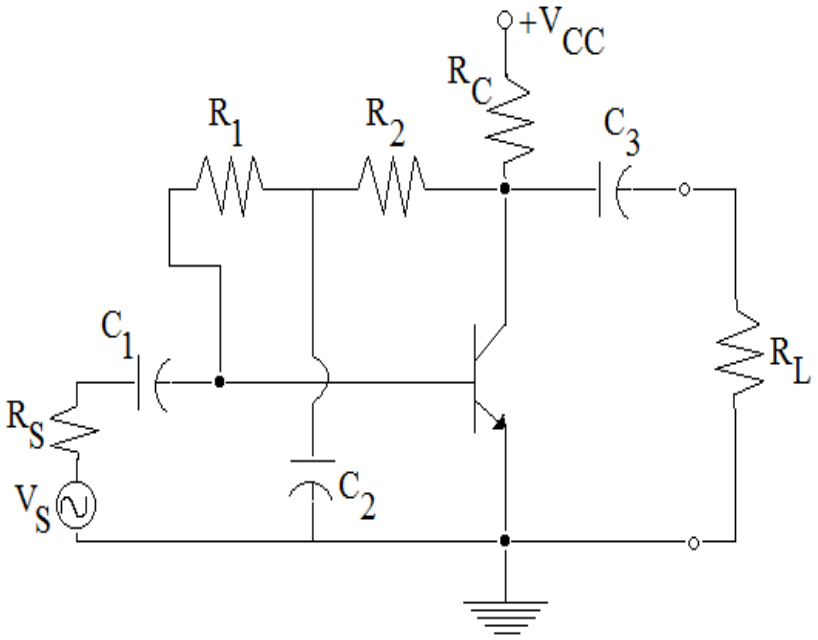
b. Explain Enhancement type MOSFET fabrication process.

Ans: Page – 28 to 29 of Textbook-II

Q.3 **a.** Draw the h-parameter equivalent circuit of Common Collector Amplifier circuit and derive the expressions for input impedance, output impedance, voltage gain and current gain.

Ans: Page 155 to 157 of Textbook-I

b. Calculate the input impedance, output impedance and voltage gain for the circuit shown below; R_1=39 K Ohm, R_2=47 K Ω, R_C= 1.8 KΩ, R_L= 68 K Ω and h_{fe}= 80, h_{oe}= 1.5 µS, h_{ie}= 1.2 KΩ.



Ans: Page 151 to 153 of Textbook-I

Q.4 **a.** Explain, with a neat diagram, the working of n-channel JFET.

Ans: Page 221 to 223 of Textbook-I

b. For given IRF520

V_{DS} (max)	I_D (max)	P_D (max)	r_d (on)
100V	8A	40W	0.3Ω

g_{FS}	V_{GS}(Th)
1.5S(min)	2V(min)
2.9 S(typ)	4V(max)

Calculate the gate – source voltage required to produce a 7A drain current in an IRF520. Determine the drain source ON voltage and the device power dissipation at $I_D = 7A$.

Ans: Page 374 of Textbook-I

Q.5 **a.** Explain with a diagram, the working of a Class B push pull power amplifier.

Ans: Page 523 to 524 of Textbook-I

b. Explain the complementary Emitter Follower Circuit.

Ans: Page 530 to 531 of Textbook-I

Q.6 **a**. Write the characteristics of an ideal op-amp.

Ans: Page – 41 to 42 of Textbook-II

b. Derive an expression for the gain of an Inverting Amplifier using op-amp.

Ans: Page 43 of Textbook-II

Q.7 **a.** Explain the working of a differentiator using an op-amp.

Ans: Page 164 to 167 of Textbook-II

b. Explain the working of the following circuits using op-amp.
(i) Voltage to Current Converter (ii) Current to Voltage Converter

Ans: Page 146 to 147 of Textbook-II

Q.8 **a.** Explain the working of monostable multivibrator using an op-amp.

Ans: Page 218 to 220 of Textbook-II

b. Explain the working of an astable multivibrator using an op-amp and derive the expression for frequency of output wave.

Ans: Page 318 to 320 of Textbook-II

Q.9 **a.** Explain the working of a Series Op-Amp Regulator.

Ans: Page 240 to 241 of Textbook-II

b. Explain the working of Successive Approximation Type ADC.

Ans: Page 361 to 363 of Textbook-II

Textbooks

I. Electronic devices and Circuits by David A Bell (3rd Edition)

II. Linear Integrated Circuits by D.Roy Choudhary and Shail B. Jain (4th Edition)