Q.2a.   Explain the photolithography process used in IC fabrication.

Ans : Page 7 to 8 of reference 2

   b.   Explain various methods used for deposition of thin films.
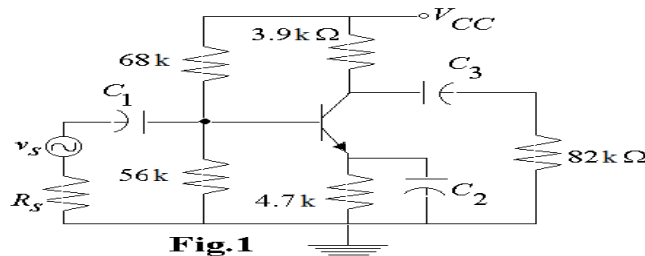
Ans : Page 31 to 32 of reference 2

 Q.3   a. Draw the Common Emitter circuit and draw its h-parameter equivalent circuit and derive the expressions for
            (i)   Input Resistance   (ii)   Output Resistance
            (iii) Voltage Gain   (iv) Current Gain

Ans : Page 254 to 257of reference 1

b.Calculate R_i , R_o , A_v for the circuit shown in Fig.1 below with h_{ie} = 2.0 kΩ, h_{fe} = 75 and h_{oe} = 1.0 µs.   **(6)**

Fig.1

Ans : Page 258 to 259of reference 1

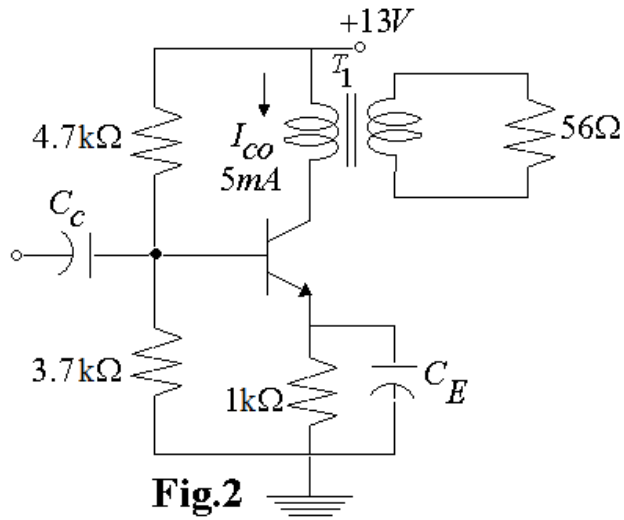**Q.4a.   Explain the operating principle of N-channel JFET.**

Ans : Page 346 to 347 of reference 1

 b.Explain how an N-channel JFET can be used as an amplifier

Ans : Page 364 to 365 of reference 1

Q.5a.   Calculate the maximum efficiency of Class A amplifier shown below in Fig.2.

Assume that the transformer has an efficiency of 80%. (8)

+13V

4.7kΩ

I_{co}
5mA

56Ω

C_c

3.7kΩ

1kΩ

C_E

Fig.2

Ans : Page 814 of reference 1

b. Explain the operation of Class B power amplifier with a neat circuit diagram.

Ans : Page 815 of reference 1

Q.6a.   Explain the basic differential amplifier.

Ans : Page 53 to 55 of reference 2

b.   Define the term "Slew Rate" for an Op-Amp and derive the expression for maximum input frequency at which undistorted output voltage is obtained.

Ans : Page 123 to 125 of reference 2

Q.7 a.   Explain the V to I and I to V converter circuits using Op-Amp.

Ans : Page 146 to 147 of reference 2

b.   Draw the circuit of integrator using Op-Amp and derive the expression for its output.

Ans : Page 168 to 169 of reference 2

Q.8 a. Explain, with a neat circuit diagram, the working of Schmitt Trigger using an OP-Amp.

Ans : Page 212 to 214 of reference 2

b. Draw the circuit of monostable multivibrator using 555 IC and derive the expression for time period T.

Ans : Page 312 to 314 of reference 2

Q.9 a. Explain the working of a Regulated Power Supply with a neat diagram.

Ans : Page 240 to 241 of reference 2

b. Explain, with a neat diagram, the working of Successive Approximation Type Analog to Digital Converter.

Ans : Page 240 to 241 of reference 2

Text Book

1. Electronic Devices and Circuits, Fifth Edition, David A Bell, OXFORD UNIVERSITY PRESS, Thirteenth impression 2010.

2. Linear Integrated Circuits, 4th Reprint 2011 Edition, D. Roy Choudhury, Shail B. Jain, New Age International Publishers