A-2990
Second Year B. Sc. (Sem. III) Examination
March / April - 2015
Electronics : Paper - III
(Electronic Circuits & Applications)

Time : 2 Hours] [Total Marks : 50

Instructions :
(1) Fill up strictly the details of signs on your answer book.

Name of the Examination : Second Year B. Sc. (Sem. III)
Name of the Subject : Electronics - III (Electronic Circuits & Applications)

(2) Q.1 is compulsory.
(3) Figures at extreme right indicate full marks.
(4) Draw figures/diagrams to support your answer.
(5) Assume data if required.

1 Write very short answers :

1. What three factors cause instability in transistor amplifier circuit ?

2. Draw the fixed base bias circuit and describe its limitations.

3. What is the main disadvantage of negative feedback ?

4. What is reverse leakage current ? How does it contribute for instability in transistor biasing circuit ?

5. Give the typical h-parameter values of common emitter circuit.

6. Draw the approximate h-parameter model for a transistor.

7. Draw the frequency response curve of a transistor with proper x-axis and y-axis labels.
2  (A) What is the need for transistor stabilization? Explain the most stable transistor biasing circuit. 
(B) Define the four h-parameters of an amplifier circuit. Draw the h-parameter circuit for the transistor in common base configuration.

OR

(A) What is negative feedback? Draw and discuss the current feedback amplifier circuit. 
(B) What impact does negative feedback make on the bandwidth of the amplifier?

3  (A) Discuss the RC coupled CE amplifier and derive expressions for $A_i$ and $A_v$. 
(B) Draw and explain the frequency response curve of the amplifier. Explain how is the bandwidth calculated from the frequency response curve.

OR

(A) What is the impact of negative feedback on input and output resistance of the amplifier, gain and the bandwidth of the amplifier. 
(B) Discuss the emitter-follower amplifier.

4  Write Short Notes (Any Two). 
1. Transformer coupled amplifier 
2. Effect of coupling and bypass capacitor on amplifier 
3. Bias compensation 
4. Limitations of collector feedback circuit.