

Roll No. \_\_\_\_\_

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**SIIS 63 A-2K14**

**B.Sc. IInd Semester Degree Examination**  
**Electronics**  
**(Electronic Circuits)**  
**Paper - 2.3**

Time :3 Hours

Maximum Marks : 80

**Instructions to Candidates:-**

- i) Answer **all** questions from section 'A'
- ii) Answer any **five** from section 'B'
- iii) Answer any **four** questions from section 'C'

**Section - A**

1. Choose the correct answer (1×5=5)
- i) The emitter of the transistor is
    - a) Lightly doaped
    - b) Moderately doaped
    - c) Heavily doaped
    - d) None of these.
  - ii) In JFET drain current is maximum, when voltage between gate and source is
    - a) Zero
    - b) Negative
    - c) Positive
    - d) None of these
  - iii) Which of the following filter circuit results best voltage regulator.
    - a) Resistor input
    - b) Chock input
    - c) Capacitor input
    - d) None of these
  - iv) The point of intersection of dc and ac load lines represents.
    - a) Current gain
    - b) Voltage gain
    - c) Operating point
    - d) both (a) & (b)
  - v) In the initial stages of multistage amplifiers we use
    - a) Direct coupling
    - b) RC coupling
    - c) Transformer coupling
    - d) None of these

2. Fill in the blanks. (1×5=5)
- i) The transistor ' $\beta$ ' is \_\_\_\_\_ than  $\alpha$ .
  - ii) UJT is frequently used as \_\_\_\_\_ oscillator.
  - iii) PIV of center tap F.W.R is \_\_\_\_\_
  - iv) The ideal value for stability factor is \_\_\_\_\_
  - v) Direct coupled amplifiers especially suited for amplifying \_\_\_\_\_ frequency signals.
3. State True or False (1×5=5)
- i) The  $\alpha$  of the transistor is given by the ratio of  $I_E \propto I_B$ .
  - ii) UJT is a device acts like a diode and two resistors.
  - iii) In a transistor series regulator, the transistor behaves like a variable resistor.
  - iv) In a transistor biasing circuit, thermal stability leads to bias stability.
  - v) A Darlington pair is similar to a double CE stage.

**Section - B**

Answer any **five** of the following (5×5=25)

4. Define ' $\beta$ '. Show that  $\beta = \frac{\alpha}{1 - \alpha}$
5. Explain in brief n - channel FET.
6. Write the comparison of rectifiers.
7. Derive the condition for stability factor.
8. Write a note on h- parameters.
9. Explain the construction and working of direct coupled amplifier.
10. Write a note on cross over distortion .

**Section - C**

Answer any **Four** of the following. (4×10=40)

11. a) What is transistor? Write the comparison of CB, CE and CC configuration of NPN transistor. (7+3)  
b) Write a note on leakage current.
12. Explain construction, working and applications of UJT. (10)

13. a) Define filter. Explain in brief shunt capacitor filter. (6+4)  
b) Write a note on positive Voltage regulator.
14. a) What is biasing? Why it is essential. (4+6)  
b) Explain transistor biasing circuit with emitter resistor method.
15. With a neat diagram, explain construction, working and frequency response of transformer coupled amplifier. (10)
16. a) Explain in brief (6+4)  
i) Class A amplifier  
ii) Class B amplifier  
b) Obtain an expression for efficiency of single ended class 'A' power amplifier.
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