Department of Physics
St. Joseph's College, Devagiri
BSc V Semester Internal Examination, October 2011
PH5 B12 Core Course VIII- Electronics

Time: 1 hour Total weightage: 10

Section A

*(Answer any **Four** questions; **4×1=4** weightage)*

1. Explain 'thermal runway' in connection with transistor.
2. Define stability factor. Obtain an expression for it.
3. Using graph, explain phase reversal in CE amplifier.
4. State and prove De Morgan's theorems.
5. What is a half adder? Draw the circuit of a half adder.
6. What is a flip-flop? Discuss the working of an RS flip-flop.

Section B

*(Answer any **Three** questions; **3×2=6** weightage)*

7. Obtain the dc bias value for the collector feedback biasing circuit using a resistor of 100kΩ. R_C=10 kΩ, V_{CC}=10V and V_{BE}=0.7V
8. For a transistor amplifier using voltage divider bias R_1=10 kΩ, R_2=5 kΩ, R_C=1 kΩ, R_E=2 kΩ, R_L=1 kΩ and C_E=10μF. (i) Draw the dc load line (ii) Determine the operating point and (iii) Draw dc load line
9. A logic circuit with 4 bit input should give a high output for inputs 0,1,2,3,4,6,8,9,10 and 11. Obtain the simplest circuit using Karnaugh map method.
10. Discuss the construction of a four bit binary counter with necessary timing diagram.

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Section B

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