

# M. Sc. 1<sup>st</sup> Semester Practical Examination 2015

Subject – Electronics

Paper-ELC-106 (practical)

(Electronic Circuit lab)

Time – 3 Hours

F. M. – 50

1. Design and study the performance of a 1<sup>st</sup> order low pass butter worth filter with following specification.  
Cut off frequency
  - a) Design with working formula. 6+2
  - b) Draw the circuit and level. 3
  - c) Implement the circuit on bread board. 3+1
  - d) Record the data for frequency response. 8
  - e) Draw the graphs. 3
  - f) Compare the cut off frequency with calculated and experimental value 7
  - g) Discus on Results obtained. 2
  
2. Design and study the performance of a 1<sup>st</sup> order high pass butter worth filter with following specification.
  - a) Design with working formula. 6+2
  - b) Draw the circuit and level. 3
  - c) Implement the circuit on frequency. 3+1
  - d) Record the data for frequency response. 8
  - e) Draw the graphs. 5
  - f) Compare the cut off frequency with calculated and experimental value 5
  - g) Discus on Results obtained. 2
  
3. Design and study the performance of an active first order low pass butter worth filter with following specification  
Cut off frequency  
Gain
  - a) Design with working formula. 6+2
  - b) Draw the circuit and level. 3
  - c) Implement the circuit on bread board. 3+1
  - d) Record the data for frequency response. 8
  - e) Draw the graphs. 5
  - f) Compare the cut off frequency with calculated and experimental value 5
  - g) Discus on Results obtained. 2
  
4. Design and study the performance of an active first order high pass butter worth filter with following specification

- |    |  |     |
|----|--|-----|
|    | Cut off frequency  |     |
|    | Gain   |     |
| a) | Design with working formula.   | 6+2 |
| b) | Draw the circuit and level.  | 3   |
| c) | Implement the circuit on bread board.                                | 3+1 |
| d) | Record the data for frequency response.                              | 8   |
| e) | Draw the graphs.   | 5   |
| f) | Compare the cut off frequency with calculated and experimental value | 5   |
| g) | Discus on Results obtained.  | 2   |
5. Design a variable regulated power supply using LM 317 with following specification
- Output voltage.....
- Output current .....
- |    |  |     |
|----|--|-----|
| a) | Working formula.   | 4   |
| b) | Circuit diagram and leveling.                            | 3   |
| c) | Implement the circuit on bread board.                    | 3   |
| d) | Record the data for low regulation and line regulation.  | 5+5 |
| e) | Draw necessary graphs.                                   | 4+4 |
| f) | Calculate percentage of regulation and stability factor. | 2+2 |
| g) | Discuss on the result obtained.                          | 3   |
6. Design a regulated power supply using 78xx and study its performance.
- Specification
- Output voltage.....
- Output current .....
- |    |  |     |
|----|--|-----|
| a) | Design with working formula.                                 | 4   |
| b) | Draw the circuit diagram and level it.                       | 3   |
| c) | Implement the circuit on bread board.                        | 3   |
| d) | Record the data for low and line regulation characteristics. | 5+5 |
| e) | Draw necessary graphs.                                       | 2+2 |
| f) | Calculate percentage of regulation and stability factor.     | 3   |
| g) | Discuss on the result obtained.                              | 4+4 |
7. Design and study the performance of a regulated power supply using power transistor and OPAMP with following specification.
- |    |  |     |
|----|--|-----|
| a) | Design with working formula.                                 | 8   |
| b) | Draw the circuit diagram and level it.                       | 3   |
| c) | Implement the circuit on bread board.                        | 4   |
| d) | Record the data for low and line regulation characteristics. | 4+4 |
| e) | Draw necessary graphs.                                       | 3+3 |
| f) | Calculate percentage of regulation and stability factor.     | 2+2 |
| g) | Discuss on the result obtained.                              | 2   |
8. Design a regulated power supply using power transistor as pass element and transistor as comparator with following specification.
- Output voltage.....
- Output current .....

- |   |     |
|---|-----|
| a) working formula with design consideration.   | 8   |
| b) Circuit diagram and leveling.  | 3   |
| c) Implement the circuit on bread board.  | 4   |
| d) Record the data for load and line regulation.  | 4+4 |
| e) Draw necessary graphs.   | 6   |
| f) Calculate percentage of regulation and stability factor.   | 2+2 |
| g) Discuss on the result obtained.  | 2   |
| 9. Study the performance of OPAMP as logarithmic amplifier.   |     |
| a) Design consideration and working formula.  | 4   |
| b) Draw the circuit diagram and level it.   | 3+2 |
| c) Implement the circuit on bread board.  | 3   |
| d) Record the necessary data.   | 10  |
| e) Draw the graphs.   | 4+4 |
| f) Discuss and comment on possible application.   | 5   |
| 10. Study the performance of OPAMP as anti logarithmic amplifier.   |     |
| a) Design consideration and working formula.  | 4   |
| b) Draw the circuit diagram and level it.   | 3   |
| c) Implement the circuit on bread board.  | 3   |
| d) Record the necessary data.   | 10  |
| e) Draw the graphs.   | 4+4 |
| f) Discuss and comment on possible application.   | 7   |
| 11. Design a single stage CE amplifier Couple the single stage with second stage using capacitance and study its performance. |     |
| a) Design consideration with working formula.   | 4+4 |
| b) Circuit diagram and leveling.  | 3   |
| c) Implement the circuit on bread board.  | 4   |
| d) Record the data for frequency response.  | 10  |
| e) Draw graph.  | 4   |
| f) Calculating the Band width.  | 3   |
| g) Discusses the results obtained.  | 3   |

**Distribution of marks**

Experiment : 35 marks

Viva-voice : 10 marks

Laboratory note book : 05 marks

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Total : 50 Marks