Roll No.....

Total No. of Units : 03
Total No. of Printed Pages : 03

**Code No. : 03/301**

# Third Semester Examination, Dec. 2018

## M.Sc. PHYSICS

## Paper - III

## (SPECIAL PAPER I - ELECTRONICS)

**Time : 3 Hrs.** **Max. Marks : 80**

- Part A and B of each question in each unit consist of very short answer type questions which are to be answered in one or two sentences.
  Part C (Short answer type) of each question will be answered in 200-250 words.
  Part D (Long answer type) of each question should be answered within the word limit 400-450.

### Unit - I

Q.1 A. What is function of Differential amplifier? **(2)**

Q.1 B. Write one application of Balanced output differential amplifier. **(2)**

Q.1 C. Explain DC analysis of Dual Input-Balanced output differential Amplifier with its circuit diagram. **(4)**

**OR**

Explain constant current bias.

Q.1 D. Draw and explain circuit of FET differential amplifier and explain its DC and AC analysis. **(12)**

**P.T.O.**

**OR**

Draw and explain circuit diagram of Cascade differential amplifier.

**Unit - II**

Q.2 A. What is inverting amplifier? **(2)**

Q.2 B. What is feedback? **(2)**

Q.2 C. Write analysis of OP-AMP equivalent circuit. **(4)**

**OR**

Explain input offset voltage and input offset current.

Q.2 D. Draw circuit and explain working of voltage follower. **(12)**

**OR**

Draw and explain common mode configuration also explain CMRR.

**Unit - III**

Q.3 A. Write principle of vibrator. **(2)**

Q.3 B. What is clipping? **(2)**

Q.3 C. Explain working of OP-AMP as DC Amplifier. **(4)**

**OR**

How OP-AMP works as Summing Amplifier.

Q.3 D. Draw circuit diagram and explain working of frequency to voltage converter. **(12)**



**OR**

What is multivibrator? Explain working of mono-stable mulivibrator.

**Unit - IV**

Q.4 A. What is square signal? **(2)**

Q.4 B. What do you mean by filtration ? **(2)**

Q.4 C. Explain working of phase shifter. **(4)**

**OR**

What is narrow band reject filter?

Q.4 D. Draw circuit and explain working of First order high pass butter worth filter. **(12)**

**OR**

Write principle of oscillator. Explain circuit and working of Wean-Bridge oscillator.

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