PBB-003-04950003 Seat No. _____

B. Sc. / M. Sc. (Applied Physics) (Sem. V) (CBCS) Examination

November / December - 2018

Advanced Electronics : Paper - XVIII

(New Course)

Faculty Code : 003

Subject Code : 04950003

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) All questions are compulsory

(2) Figures on the right side indicate marks

1 Attempt any **seven** short questions (Two marks each) **14**

(1) Which amplifiers are used for PA (Public Address) systems?

(2) What is meant by power transistors?

(3) Define PLL (Phase Locked Loop)

(4) Voltage buffer gives unity gain. Then why do we use it?

(5) Is it possible to have an ideal OPAMP in practice? Why?

(6) Why IC741 is called OPAMP?

(7) What is virtual ground?

(8) How current mirror circuit is used?

(9) What is meant by filter circuits?

(10) Explain Gain Bandwidth product for OPAMP.

2 (a) Write answers of any **two** : **10**

(1) Differentiate Linear and non linear ICs.

(2) Discuss 555 time IC.

(3) Explain PLL with its application.

(4) Explain VCO.

(b) Write answers of any **one** : **4**

(1) What is Astable multivibrator? Explain using 555 timer circuit.

(2) Explain differential amplifier.

3 (a) Write answers of any **two** : **10**

(1) Discuss all types of Power Amplifiers in brief

(2) Differentiate Class A and Class B operations.

(3) Where are class C and Class D amplifiers used?

(4) Discuss power amplifier distortion and heat sinking.

(b) Write answer of any **one** : **4**

(1) With proper sketches of load line, differentiate different class of power amplifiers.

(2) Explain class B push-pull arrangement.

4 (a) Write answers of any **two** : **10**

(1) How OPAMP can be used in instrumentation? Explain with one example.

(2) Discuss OPAMP DC offset parameters.

(3) Discuss OPAMP as controlled source.

(4) Explain common mode and differential modes of OPAMP.

(b) Write answer of any **one** : **4**

(1) Draw and explain circuit of OPAMP as differentiator.

(2) Draw and explain circuit of OPAMP as an inverting and non inverting amplifier.

5 (a) Write answers of any **two** : **10**

(1) Explain in detail different types of filter circuits

(2) List and discuss ideal characteristics of OPAMP.

(3) Draw and explain circuit of OPAMP as an integrator.

(4) Draw and explain circuit of OPAMP as a summing amplifier

(b) Write a short note of any **one** : **4**

(1) Write short note on applications of OPAMP

(2) Define and explain slew rate and CMRR for 741 IC.
