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# JAG-P-XVIII

Seat No. _____

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

**November - 2019**

## Advanced Electronics : Paper - XVIII

***(New Course)***

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

**Instructions :** (1) All questions are compulsory.
(2) Numbers in the right margin indicate marks.

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

(1) What is VCO ? Where do we use it ?
(2) What is the difference between virtual ground and real ground ?
(3) What is meant by Offset Null ?
(4) Define Phase Locked Loop (PLL).
(5) What is Unity gain circuit? When do we use it ?
(6) Which device is called Power Amplifier ?
(7) Why filters are required in electronic devices.
(8) Why IC741 is called OPAMP ?
(9) What is Gain Bandwidth Product ?
(10) Explain how current mirror circuits are used.

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

(1) Explain OPAMP as an Integrator.
(2) Explain OPAMP as a differentiator
(3) Explain class -B PUSH -PULL arrangement.
(4) How OPAMP can be useful in instrumentation ?

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

(1) Why power amplifiers are classified in different CLASS type ? What is the role of load line ?
(2) Why heat sinks are used in power amplification ?

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

(1) Differentiate Linear and Non Linear Ics

(2) Explain 555 timer operation.

(3) Explain 555 as multivibrator.

(4) Explain the term VCO and its functioning.

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

(1) Differentiate Class A and Class B operation.

(2) Which amplifier is used for Public adress system (PA system) ?

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

(1) Discuss OPAMP as an inverting amplifier and Non inverting amplifier.

(2) List the characteristics of Ideal OPAMP.

(3) OPAMP is widely used. List down main uses of OPAMP.

(4) Discuss OPAMP as an averaging and summing amplifier.

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

(1) Discuss OPAMP working for AC and DC signals.

(2) Discuss OPAMP DC Offset parameter.

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

(1) Differentiate Low pass and High Pass Filters.

(2) Explain Cutoff frequency concept and Pass band for each type of filters.

(3) Explain OPAMP as a controlled Voltage Source.

(4) Explain OPAMP as a controlled Current source.

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

(1) Draw and explain pin diagram of OPAMP IC741.

(2) Explain Differential amplifier with reference to OPAMP.

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