**PSG COLLEGE OF ARTS & SCIENCE**
(AUTONOMOUS)

**BSc DEGREE EXAMINATION MAY 2019**
(Fifth Semester)

Branch – **PHYSICS**

**CORE ELECTIV – I : SEMICONDUCTOR ELECTRONICS**

Time : Three Hours Maximum : 75 Marks

**SECTION-A (20 Marks)**
Answer **ALL** questions
**ALL** questions carry **EQUAL** marks (10 x 2 = 20)

1 What are N-type extrinsic semiconductors?
2 Define ripple factors.
3 What are the three important static characteristics of transistor?
4 What is the need for biasing a transistor?
5 State any two advantages of negative feedback.
6 Explain the summing point of an OPAMP.
7 Give the frequency of oscillation of a Hartley oscillator.
8 What is the advantage of frequency modulation over amplitude modulation?
9 What is clipping circuit?
10 What is a bistable multivibrator?

**SECTION - B (25 Marks)**
Answer **ALL** Questions
**ALL** Questions Carry **EQUAL** Marks (5 x 5 = 25)

11 a Explain the volt-ampere characteristics of p-n junction.
OR
b Discuss the voltage regulation of a zener diode.

12 a Discuss the input and output characteristics of a common base transistor.
OR
b Discuss the operation of a push pull amplifier.

13 a Describe the working of an emitter follower circuit.
OR
b Discuss the effects of negative current feedback.

14 a Discuss in detail the working of a Hartley oscillator.
OR
b What are the different types of Modulation? Explain amplitude modulation.

15 a What are clipping and clamping circuits?
OR
b Discuss the switching action of a transistor.

**SECTION - C (30 Marks)**
Answer any **THREE** Questions
**ALL** Questions Carry **EQUAL** Marks (3 x 10 = 30)

16 Explain in detail the working of a full wave rectifier.
17 With a neat circuit discuss the working of RC coupled amplifier.
18 Give the characteristics of an ideal OPAMP. Discuss the applications of OPAMP as Integrator and differentiator.
19 Discuss the stages of a super heterodyne receiver.
20 Explain he construction, working and characteristics of FET.

Z-Z-Z END