

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2017
(Fifth Semester)

Branch- **PHYSICS**

CORE ELECTIVE-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 is doping?
- 2 What do you mean by Avalanche breakdown?
- 3 What is mean by load line?
- 4 How are power amplifier classified?
- 5 Give any two advantages of negative feedback.
- 6 What is virtual ground?
- 7 What is tank circuit? *
- 8 Write the frequencies of Amplitude modulated wave.
- 9 What factors determine the width of output pulse in an astable multivibrator?.
- 10 Write the amplification factor (μ) of FET.

SECTION - B (25 Marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks (5 x 5 = 25)

- 11 a Give the energy band description of Semi conductors.
OR
b How Zener diode work as voltage stabilizer?
- 12 a Write a note on Operating Point of a transistor.
OR
b Write a neat circuit diagram,- explain the operation of RC coupled amplifier.
- 13 a Explain the principles of negative voltage feedback.
OR
b Describe an Inverting Op-Amp.
- 14 a Describe the circuit operation of Phase Shift Oscillator.
OR
b What are essentials in demodulation?
- 15 a Explain the switching action of a transistor with the help of output characteristics.
OR
b Describe the action of Positive Clamper and Negative Clamper.

SECTION - C (30 Marks)

Answer any **THREE** Questions

ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Discuss the Voltage-Ampere characteristics of PN junction diode.
- 17 Draw the circuit of a single stage transistor amplifier, explain the function of each component.
- 18 How Op-Amp work as Adder, Subtractor, Integrator and Differentiator?
- 19 With a neat diagram, explain the principle operation, advantages and disadvantages of Wein bridge Oscillator.
- 20 Analyse the construction, working and V-I characteristics of an SCR.