PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2017
(Fifth Semester)

Branch - **PHYSICS**

CORE ELECTIVE ! - 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 Calculate the harrier potential for 'Si' junction at 100°C if its value at 25°C is 1.5 V.
2 Which is called breakdown voltage?
3 What is Class-C power amplifier?
4 What is collector efficiency of a power amplifier?
5 What is the difference between positive feedback and negative feedback?
6 What do you understand by virtual ground?
7 What is amplitude modulation?
8 Give the advantages of phase shift oscillator.
9 What is a multivibrator?
10 Define amplification factor (ja) in FET parameter.

SECTION - B (25 Marks)

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

11 a Explain the function of CLC filter.

OR

b Describe the function of zener diode voltage stabilizer.

12 a Explain the potential divider method in transistor biasing.

OR

b Describe the base resistor method used in transistor biasing.

13 a Describe the gain of negative voltage feedback amplification.

OR

b Explain the circuit of inverting Op-Amp.

14 a With a neat circuit diagram, explain the action of Colpitf s oscillator.

OR

b What is Demodulation? What are the essentials of demodulation?

15 a Explain the function of a differentiating circuit with a neat circuit diagram.

OR

b Explain the function of Combination Clipper.

SECTION - C (30 Marks)

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

16 Discuss energy band description of semiconductors .

17 Explain the operation of a class-B Push Pull amplifier with a neat diagram. What are its advantages?

18 Explain how an OP-AMP function as an adder and subtracter.

19 Analyse the action of the circuit and advantages of Wein bridge oscillator.

20 Discuss the function and importance of Astable or Monostable multivibrator.

Z-Z-Z END