PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2018
(Third Semester)

Branch - **PHYSICS**

ATOMIC. MOLECUAR & LASER PHYSICS

Time : Three Hours   Maximum : 75 Marks

SECTION-A 120 Marks!
Answer **ALL** questions
ALL questions carry **EQUAL** marks   (1 0 x 2 = 20)

1   Define exutation potential.
2   What is Zeeman shift?
3   What are quantum numbers?
4   Give any two applications of photovoltaic cell.
5   State Mosley's Law.
6   Define Compton Scattering.
7   Give the principle of Laser.
8   List the any two applications of Lasers in industry.
9   What are positive rays?
10   Define Packing fraction.

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

11 a Explain the effect of nuclear motion on atomic spectra.
                OR
   b Discuss briefly about the optical spectra.

12 a State and explain Paschen-Back effect.
                OR
   b List out the application of Photoelectric cell.

13 a Write notes on continuous and characteristic X-ray spectra.
                OR
   b State and explain Bragg's Law.

14 a   Explain the different methods of Pumping action.
                OR
   b What is Laser induced fusion? Explain it.

15 a Describe the construction and working of Dempster's mass spectrograph.
                OR
   b Explain the instrumentation of Raman Spectroscopy.

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

16   State and explain Zeeman effect. Explain the Lorentz classical theory of Normal effect.

17   Explain vector atom model. Give the quantum numbers associated with vector atom model.

18   Describe the construction and working of Powder crystal method for determining crystal structure.

19   Explain the construction and working of He-Ne Laser.