GOVERNMENT DEGREE COLLEGE GANDERBAL

Department of Physics

Question Paper/Assignment for B.Sc 5th Semester

Examination: Semester V — June 18, 2020
Course: Modern Physics-I — Course Code: PHY516D
Subject: Physics — Max. Marks: 60
Batch: Regular 2017/Backlog 2016

Note: **Online mode of Examination.**

Attempt any Six Questions. Each question carries equal weightage.

1. Write down the expression for de-Broglie wave length with relativistic momentum.
2. Explain the reasons for the absence of electrons inside the nucleus.
3. Why Schrodinger's equation cannot be derived from other basic principles of physics.
4. Explain the terms:
   (a) Binding energy of the nucleus
   (b) Packing fraction
   (c) Mass defect
5. Why there is no Uncertainty Relation between velocity and position.
6. Explain any two properties of nucleus.
7. Both Photo electric effect and Compton effect arises due to action of photon on electrons but the two effects are not same. Why?
8. Differentiate between the terms bosons and fermions.
9. Find the expression for wave velocity associated with the particle and show that it exceeds the velocity of light.
10. State and prove Heisenberg's uncertainty principle. Also explain it in terms of energy and time.
11. Using the standard value of Planck's constant and mass of electron, find the momentum and wavelength of the electrons accelerated through an accelerating potential of 56V.

Instructions:

1. The assignment is to be submitted through Google classroom having code zop4ldv
2. The students who have not joined the G-classroom can mail assignment on surayabashir18@gmail.com
3. Last date of assignment submission is 26/06/20.
4. The assignment must be handwritten.
5. Students must write page no., Roll No., Registration No. on the top right corner of each page.
6. A4 size ruled paper with not more than 10 pages converted into single PDF file using **camscanner** will be only accepted.
7. The students must not share their assignments with their classmates/counterparts and as such one and a similar assignment submitted by two or more than two students shell be treated as a "**Case of Copying**" and hence rejected tooth and nail.
8. Students are advised to preserve hard copy of Assignment.
9. Assignments should be scanned properly for clear visibility.

Title page of assignment must contain

- Name of the candidate…….
- Semester……
- Category: Fresh/Backlog……..
- Batch:……
- Roll No……..
- Registration No…….
- Subject……..
- Cell No……..
- e-mail id……
- Date of Submission……...
- Signature of candidate……