

Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

B.Sc (CS) (Sem.-6)
PARTICLE PHYSICS
Subject Code : BCS-604
M.Code : 72784
Date of Examination : 12-07-22

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Answer briefly :

- (a) Explain the term '*Bremsstrahlung*'.
- (b) Explain the term '*straggling*' of a charged particle.
- (c) Write down the law of absorption of gamma rays in matter.
- (d) What is a Betatron?
- (e) What are the factors on which energy of an electron accelerated in synchrotron depends?
- (f) What are elementary particles?
- (g) Define the term '*specific ionisation*'.
- (h) Explain the term '*anti-particle*'.
- (i) What do you mean by the term '*parity*'?
- (j) Explain the concept of '*strangeness*'.

SECTION-B

2. Define stopping power of the medium. State Bethe and Bloch modification. Write down the Bethe-Bloch formula.
3. Discuss the construction and working of a cyclotron. Derive expression for maximum kinetic energy achieved by a particle of mass 'm' in terms of applied magnetic field and dee radius.
4. Explain pair production and annihilation of electron positron pair. How much energy do you expect from electron positron pair annihilation?
5. Differentiate between ionization Chamber, Proportional counter and GM counter.
6. What is Gell Mann Nishijima scheme? What are quarks? Outline the basic assumptions and properties of quarks.
7. Explain the concept of charge conjugation. State C.P.T. theorem.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.