Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 07

B.Sc (CS) (2013 & Onwards) (Sem.–6)

PARTICLE PHYSICS

Subject Code : BCS-604

M.Code : 72784

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 'relative atomic stopping power'.

(b) An electron and a photon have the same wavelength. Which one is more energetic?

(c) Explain the term 'mass absorption coefficient'.

(d) Can a cyclotron be used to accelerate electrons?

(e) Why is an ionization chamber less sensitive to β-particle?

(f) Describe specific ionisation.

(g) What is Gell Mann Nishijima scheme?

(h) What are strange particles?

(i) What are leptons? Name any three leptons and their anti-particles.

(j) What do you understand by iso-spin?

SECTION-B

2. Discuss the motion of high energy electrons through a medium. How does a fast electron lose energy on its passage through matter? Explain the process of Bremsstrahlung.

3. Give Dirac's theory of pair production and discuss pair production probability.

4. What is betatron? Briefly describe its principle, construction and working of betatron.

5. Explain the construction and operation of a semi-conductor detector. Draw a block diagram to show the main components.

6. What happens when a particle combines with its anti-particle? Name the elementary particles which are their own anti-particles.

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.