ST.JOSEPH'S COLLEGE OF ARTS & SCIENCE, (AUTONOMOUS) CUDDALORE-1.

III B.Sc PHYSICS

SUBJECT TITLE : NUCLEAR & RADIATION PHYSICS
SUBJECT CODE: PH611
INCHARGE: H.JUDE LEONARD (S-I & S-II)

I -TWO MARKS

1. Merits and Demerits of Liquid Drop Model.
2. What do you mean by Parity of Nuclei?
3. State Geiger-Nuttal Law.
4. State Nuclear Isomerism.
5. Limitations of Cyclotron.
6. What are the ideas behind photographic Emulsion technique.
7. Notes on radiation therapy.
8. Differentiate Lepton & mesons.
9. What are magic numbers?
10. What is Gamma ray?
11. Write down the principle of a Bubble chamber.
12. State Nuclear Fission.
13. What are Quarks?
14. Write down the various types of Interaction

15. What is nuclear spin?
16. What is Electron K capture?
17. What do you mean by Critical Size of a Reactor?
18. What are radio active hazards?
19. Write down about the leptons and their antiparticles.

II -FIVE MARKS

1. Write down Proton-Neutron Hypothesis.
2. Discuss Shell Model.
3. What is Radio- active equation? Discuss the transient & secular equation.
4. Explain β-ray spectra. Discuss Important characteristics
5. Construction & working of Proton Synchrotron.
6. Explain the construction & working of GM counter.
7. Explain the biological effects of Nuclear radiations.
8. Explain the principle, construction & working of Fast Breeder Reactors.
9. Different types of interaction between elementary particles.
10. Different types of Quarks.
11. Expression for nuclear magnetic dipole moment.
12. Write down the Proton-electron hypothesis.
13. State and explain the law of successive disintegration.
14. Explain the theory of Alpha Decay.

15.Explain the working of Electron synchrotron.

16.Construction & working of Ionization Chamber.

17. Detailed account on Baryons.

18.Working of Scintillation Counter.

19. Write a note on Hyperons.

20. Short notes on Radio-active therapy.

III -TEN MARKS

1. Discuss in detail about Meson theory.
2. Explain the Neutrino theory of β-decay & electron K capture.
3. Explain Construction & working of Bubble chamber.
4. Discuss the General aspects of Nuclear reactor design.
5. Write down the classification of particles based on their masses.
6. Explain Construction & working of Electron synchrotron.
7. Explain Construction & working of Proton synchrotron
8. Discuss in detail about Pressurized Heavy Water Reactor.
9. Describe in detail about Bohr wheeler theory and explain the terms in Bethe weizeckers formula.
10. Detailed notes on Alpha Decay
11. Explain the construction and working of cyclotron.

12. Discuss in detail about the types on nuclear reactors.

13.Describe Quarks & explain their types.