Or

(b) Explain the elements of Neutral *K*-meson theory and discuss the CP violation in neutral *K*-decay.

6. (a) Give the brief idea of Salam-Weinberg theory of standard model and explain the experimental limits of neutrino.

Or

(b) Explain Neutrinoless double-Beta decay and discuss the magnetic moment of neutrino.

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2018

Time : 3 hours

Full Marks : 80

Answer from **both** the Sections as per direction

The figures in the right-hand margin indicate marks

Candidates are required to answer in their own words as far as practicable

(NUCLEAR SCIENCE-II)

SECTION—A

1. Answer any *four* of the following :   4 × 4

   (a) Explain integral representation of propagator function.

   (b) Explain the properties of Scattering matrix.

   (c) Explain Sub Quark model.

(2)

(d) Explain the magnetic moment of Baryons.

(e) Explain the regeneration of K-mesons.

(f) Explain Higg's mechanism.

Or

2. Answer *all* questions from the following : 2 × 8

(a) Define T-product and normal product.

(b) Define momentum space.

(c) What are Baryons ?

(d) What do you mean Charm and Beyond ?

(e) What is strange particle ?

(f) Define Cabibbo angle.

(g) What is Higg's particle ?

(h) Define Solar neutrio.

(3)

SECTION—B

Answer all questions : 16 × 4

3. (a) Write about Feynman propagators and explain the Feynman diagram rules in co-ordinate and momentum space.

Or

(b) Explain Wick's theorem and discuss the electron-photon Scattering.

4. (a) Explain the interactions among the elementary particles and discuss the Baryon-Meson Coupling.

Or

(b) Explain SU(6) symmetrics and discuss the SU(6) wave functions for Mesons and Baryons.

5. (a) Explain the Helicity of neutrino and discuss the Muon and Pion decay calculation.