

ACADEMY of HIGHER EDUCATION

(Deemed to be University under Section 3 of the UGC Act, 1956)

[illegible]

January 2021

**Subject: Particle Physics I (PHY-5005)**  
**(REVISED CREDIT SYSTEM - 2017)**

Note: (i) Answer all the questions.  
(ii) Answer the questions to the point.

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- and  $A = (2m_u/\hbar)^2 160 \text{ MeV}/c^2$ . Show detailed calculation. [3]
- (ii) Mention any experimental evidence which shows that a quark flavor can have three colors. [2]
- (iii) Mention any experiment which shows existence of gluons. [1]
- (iv) Qualitatively show that only 54% momentum of proton is carried by quarks. [4]
5. (i) How many types of weak interaction are there? Give at least one example of each type. Why weak interaction is sometimes called as flavordynamics. [4]
- (ii) Draw the Feynman diagram for neutron decay using quark picture. Show the direction of time also. [2]
- (iii) Write briefly about the Glashow model of electroweak theory. [4]
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