Enrollment No:	Exam Seat No:

C. U. SHAH UNIVERSITY

Summer Examination-2022

Subject Name: Particle and Nuclear Physics

Subject Code: 4SC06PNP1 Branch: B.Sc. (Physics)

Semester: 6 Date: 05/05/2022 Time: 02:30 To 05:30 Marks: 70

Instructions:

b)

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

Q-1		Attempt the following questions:	(14)
•	a)	How elementary particles are produced?	01
	b)	Name the four types of the fundamental forces.	01
	c)	List out the names of elementary particles of Mesons.	01
	d)	Mesons and baryons are known as	01
	e)	Name the three radioactive decays.	01
	f)	The SI unit of activity is	01
	g)	Write the equation of Alpha emission.	01
	h)	Write proton-alpha reaction	01
	i)	Define photoelectric effect.	01
	j)	The probability of photoelectric effect is given by	01
	k)	If the energy of incident photon in 1.022 MeV then what happened?	01
	1)	List out the names of Gas filled detectors.	01
	,	What do you mean by ionization?	01
		What is the full form of GM counter?	01
Attei	npt any	four questions from Q-2 to Q-8	
Q-2		Attempt all questions	(14)
•	a)	Write a note on types of interactions.	07
	b)	Classify the elementary particles with necessary diagram.	07
Q-3		Attempt all questions	(14)
	a)	Write a note on Mesons.	07
	b)	Explain in detail Baryons.	07
Q-4		Attempt all questions	(14)
-	a)	Classify how nuclear decay is classified.	07



Write a note on Laws of disintegration.

07

Q-5		Attempt all questions	(14)
	a)	Explain in detail the reactions based on the reaction mechanism.	07
]	b)	Explain proton induced reactions.	07
Q-6		Attempt all questions	(14)
	a)	Write a note on Photoelectric effect.	07
	b)	Classify the radiation detectors according to the signals produced.	07
Q-7		Attempt all questions	(14)
_	a)	Write a note on Gas filled detectors.	07
	b)	Explain in detail the ionization chamber with necessary diagram.	07
Q-8		Attempt all questions	(14)
_	a)	Write a note on conservation laws in nuclear reactions.	07
	b)	Write principle, construction and working of proportional counter.	07

