GUJARAT NATIONAL LAW UNIVERSITY
GANDHINAGAR
Course: **Advanced Sciences**
Semester-III (Batch: 2013-18)

End Term Examination: Oct-Nov. 2014

Date: 30th October, 2014
Duration: 2 hours **Max. Marks: 40**

Instructions:
- Read the questions properly and write the answers in the given answer book.
- The respective marks for each question are indicated in-line.
- Do not write any thing on the question paper.
- Indicate correct question numbers in front of the answers.
- No questions or clarifications can be sought during the exam period, answer as it is, giving reason, if any.

Part-A **Marks**

Q.1 Write the full form: C^3I, PAL (02)

Q.2 Write any four differences between the alpha and beta particles. (02)

Q.3 Explain the role, with example, being played by any two of the components in the working of a nuclear reactor: moderator, coolant, control rods. (02)

Q.4 Explain any two reactions with the help of general equation: (p,n), (d,n), (n,p). (02)

Part-B

Q.5 Answer **any seven** of the following questions: (7x1= 07)
(a) Write any two differences between the natural and synthetic nanoparticles.
(b) Write the full forms of NCBI & BLAST.
(c) What do you mean by internal gap in the gene sequencing?
(d) Name the classification of the gene sequence alignment.
(e) Name two solvents, with the range of their absorption, that are used in the UV-Vis spectrophotometer.
(f) What do you mean by Collisional deactivation?
(g) Define relative density and give the name of instrument used to measure it.
(h) What is cetane number and give the formula to determine the diesel index.

Q.6 Write short note on **any five** of the following: (5x2= 10)
(a) Basic principle & range of UV-Vis spectroscopy.
(b) Four differences between AAS and AES.
(c) Risk factors of the Silver Nanoparticles.
(d) Test for adulterants in ghee and butter.
(e) LPG storage.
(f) Uses of saturated hydrocarbons in petroleum distillation.

Q.7 Answer **any five** of the following questions: (5x3= 15)

(a) What are the ranges, types of vibration and solid sample preparation method for IR spectroscopy?

(b) Explain the states of Flourimetry with diagram.

(c) What is adulteration and write its types with standards.

(d) Write the types of jet fuels and explain the military standards of jet fuels.

(e) Explain the fraction distillation of petroleum products.

(f) Explain the types of HPLC techniques based on the principle of separation and elution technique.

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