



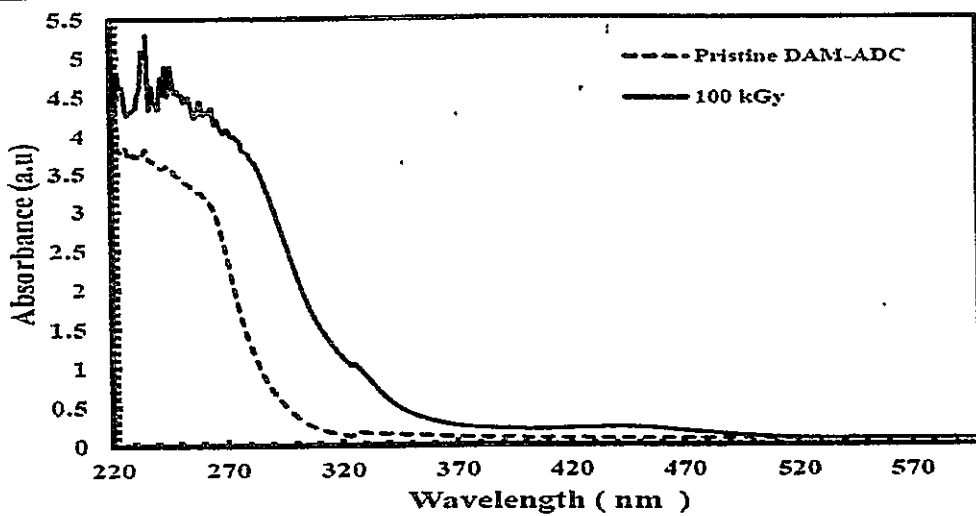
Physics Department, Faculty of Science,
Menoufia University
Final Term Exam. First term, 2016/2017
Course: Radiation Damage *تمهيدى ماجستير فيزياء إشعاعية*
Time allowed : 2 hrs.
22-12-2018



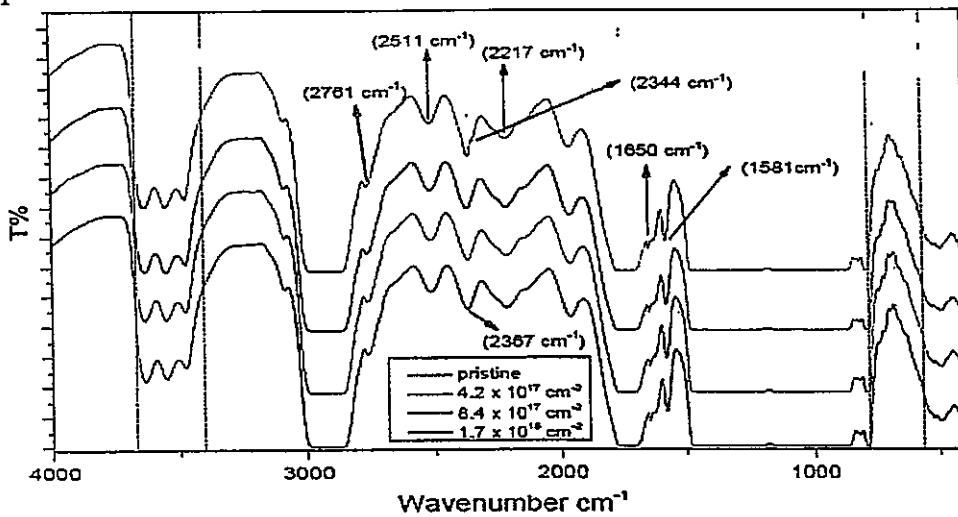
Answer The Following Questions

$$h=6.63 \times 10^{-34} \text{ J}, \quad c=3 \times 10^8 \text{ m/s}$$

- | | |
|---|--|
| 1 | Classify polymers and explain the effect of radiation on it. |
| 2 | Discuss the different mechanisms by which photons interact with matter. |
| 3 | a What is Raman Spectroscopy?
<i>Explain the</i>
b <i>Linear-Quadratic model (LQ) for dose fractionation</i> |
| 4 | Discuss the mechanisms by which charged particles interact with matter and explain the concept of LET and Bragg peak. |
| 5 | Simply (not in details) differentiate between the following:
1- LET and RBE.
2- Direct and indirect action of radiation.
3- Response of normal and tumor cells to radiation.
4- Direct and indirect transition of electron in solids.
5- XRD and FTIR |
| 6 | Given the following figure which shows the absorption spectrum for two samples one irradiated by gamma and the other one was un-irradiated (pristine). Estimate the optical energy gap for the two samples and discuss the obtained results. (UV spectra) |



7 Given the following FTIR chart for CR-39 SSNTD, determine the different function groups and the different modes of vibration if possible.



Best Wishes

Examiner: *Prof. Dr. El-Sayed Etwad*

Head of Department: *Prof. Dr. Magdy Elbo Ghazala*