



KUVEMPU UNIVERSITY
OFFICE OF THE DIRECTOR
DIRECTORATE OF DISTANCE EDUCATION
JnanaSahyadri, Shankaraghatta – 577 451, Karnataka



Phone: 08282-256426; Fax: 08282-256370; Website: www.kuvempuuniversitydde.org
E-mails: ssgc@kuvempuuniversity.org; info@kuvempuuniversitydde.org

TOPICS FOR INTERNAL ASSESSMENT ASSIGNMENTS:2018-19

Course:M.Sc. PHYSICS (Final Year)

Important Notes:(1) Students are advised to read the separate enclosed instructions before beginning the writing of assignments. (2) Out of 15 Internal Assignment marks per paper, 5 marks will be awarded for regularity (attendance) to Counseling/ Contact Programme classes pertaining to the paper. Therefore, the topics given below are only for 10 marks each paper.

Paper V: Electrodynamics, Optics and Molecular Spectroscopy

1. A plane polarized electrodynamics wave travelling in a dielectric medium of refractive index 'n' is reflected at normal incidence from the surface of a conductor. Find the phase change undergone by its electric vector if the refractive index of the conductor is $n_2 = n(1+i\rho)$

5 MARKS

2. The rotational lines of band system of electronic vibration spectra of CN is given by $\bar{V} = (25,798 + 3.85 m + 0.068 m^2)cm^{-1}$

Deduce i) The values of B' and B''

ii) The position of band head

iii) Comment on the degradation of the band system

5MARKS

Paper VI: Nuclear, Cosmic Rays & Particle Physics

1. Discuss energy levels of light nuclei and the hypothesis of charge independence of nuclear forces.

5MARKS

2. Calculate the energy of neutron produced when a slow negative pion is captured by a proton. Treat the neutron non-relativistically.

5MARKS

Paper VII: Solid State Physics – I

1. Describe the experimental determination of phonon dispersion relation using a triple axis neutron spectrometer.

4MARKS

2. Given an account of the various theories of specific heat of solid, Discuss any of them in detail.

4MARKS

3. Assuming the electrons to be free, calculate the total number of states below $E = 5eV$ in a cubical box of volume of $10^{-5}m^3$

2MARKS

Paper VIII: Solid State Physics – II

1. Give physical explanation for the formation of different parts of the hysteresis curve.

5MARKS

2. Find the magnetic induction in the surface of a spherical superconductor of radius R, which experiences a uniform magnetic field B_0

5MARKS
