



KERALA AGRICULTURAL UNIVERSITY
B.Tech. (Ag. Engg.) 2017 Admission
I Semester Final Examination-January-2018

Sacs.1102

Engineering Physics (2+1)

Marks: 50
Time: 2 hours

- I Fill in the Blanks** (10x1=10)
- 1 What is Zeeman effect?
 - 2 What are high temperature superconductors?
 - 3 Give two examples for Type I superconductors.
 - 4 What are coherent sources?
 - 5 Define bandwidth of an interference pattern.
 - 6 What is the difference between laser and maser?
 - 7 Quantum dots are dimensional nanomaterials.
 - 8 Carbon nanotubes are obtained by rolling sheets.
 - 9 What is meant by pumping in a laser device?
 - 10 Define numerical aperture of an optic fibre.
- II Write Short notes on any FIVE of the following** (5x2=10)
- 1 Write a note on squids.
 - 2 Give any two advantages of optical fibre communication.
 - 3 What is the role of He atoms in He-Ne laser?
 - 4 Give any two advantages of using nanoparticles in drug delivery .
 - 5 What are stokes and antistokes lines?
 - 6 Distinguish between spontaneous and stimulated emission.
 - 7 What do you mean by donor and acceptor levels in semiconductors?
- III Answer any FIVE of the following.** (5x4=20)
- 1 Explain colours of thin films.
 - 2 Explain the principle of optical fibre.
 - 3 What is Meissner effect? Prove that superconductor is a perfect diamagnet.
 - 4 Calculate the numerical aperture, maximum acceptance angle and the critical angle of optical fibre having a core of refractive index 1.5 and cladding of refractive index 1.45 when placed in air.
 - 5 Establish the relation between Einstein's A and B coefficients.
 - 6 Explain recording of a hologram.
 - 7 Compare diamagnetic and paramagnetic materials.
- IV Write an essay on any ONE of the following** (1x10=10)
- 1 Explain band theory of solids. Based on this theory how solids are classified into solids, insulators and semiconductors.
 - 2 With neat diagrams explain the construction and working of Ruby laser.
