Roll No.:

Total No. of Questions : 6] [Total No. of Printed Pages : 4

EG-285

B.E. II Semester (CGPA) Civil Engg.

Examination 2018

ENGINEERING PHYSICS

Paper - CE-202

Time Allowed : Three Hours] *[Maximum Marks : 60*

Note : i) All questions are compulsory and carry equal marks.

ii) Internal choice given in each question from 2 to 6

Q.1. Choose the correct answer :- 10

i) He - Ne laser is

(a) Two level laser

(b) Three level laser

(c) Four level laser

(d) N- level laser

ii) The conductivity of a super conductor is

(a) Infinite (b) Zero

(c) Finite (d) None of these

iii) Probability density of a wave function ψ is

(a) $|\psi|$ (b) $|\psi|^2$

(c) $\int \psi \psi^* dc$ (d) None of these

iv) Electron can be accelerated to very high energies by means of

(a) Cyclotron

(b) Betatron

(c) Thyratrons

(d) None of the above

v) Fiber optics communication uses the phenomenon of

(a) Reflection

(b) Polarization

(c) Interference

(d) Total internal reflection

Q.2. Attempt any two :- 10

i) In a Newton's ring experiment the diameter of the 5th ring was 0.336 cm and the diameter of 15th ring was 0.590 cm. Find the radius of curvature of the plano - convex lens if the wavelength of high used is 5890×10^{-8} cm.

ii) Discuss Michelson's interferometer and give its applications.

iii) Explain Rayleigh Criterion of resolution.

iv) What is a Nicol prism? Explain its action.

Q.3. Attempt any two :- 10

i) X-rays of 0.5Å are scattered by the electrons in a block of carbon through 90°. Find the wavelength of scattered photon.

ii) Establish the relation between group velocity phase velocity and particle velocity.

iii) Explain the construction and working of any of the solid state lasers.

iv) What are continuous and characteristics x-rays and how are they produced?

Q.4. Describe the construction and working of a cyclotron. Discuss its limitations. 10

OR

Describe the phenomenon of nuclear fission. Explain nuclear fission on the basis of liquid - drop model.

Q.5. Give the construction and theory of Huygen's eye - piece and show that it is free from spherical and chromatic aberrations. 10

OR

Two thin convex lenses of focal lengths 30cm and 10cm are separated by a distance of 25cm in air calculate the positions of the cardimal points.

Q.6. Attempt any two :- 10

a) Explain Ingen-Hausz experiment.

b) Write short notes on Stefan's radiation law.

c) Short notes on Josephson effect.

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