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**B.E. IInd Semester (CGPA)
Examination, 2017**

EF-316

CIVIL ENGG.

(Engg. Physics)

Paper : CE-202

Time : 3 Hours]

[Maximum Marks : 60

Note :- All questions are compulsory and carry equal marks.
Internal choice is given in each question, except first
question.

1. Choose the correct answer :

(a) In Newton's ring arrangement the diameter of
rings formed is proportional to :

(i) λ

(ii) λ^2

(iii) $\sqrt{\lambda}$

(iv) $\sqrt{\frac{1}{\lambda}}$

ive, presented the certificate to Jack Robinson,
ing Officer of the CN Tower on the EdgeWalk
1,168ft above the ground!

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- (b) The energy corresponding to 1 a. m. u. is :
- (i) 931 eV (ii) 931 keV
(iii) 931 MeV (iv) 931 J
- (c) Active centre in Ruby laser is :
- (i) Al (ii) Cr^{+3}
(iii) O_2 (iv) Al_2O_3
- (d) At low temperature, if the resistivity of a metal vanishes, then it is a :
- (i) Conductor (ii) Super-conductor
(iii) Dielectric (iv) Insulator
- (e) Which of the following is not the property of Photons ?
- (i) Momentum (ii) Energy
(iii) Frequency (iv) Rest mass $2 \times 5 = 10$
2. (a) In Newton's ring experiment, the Diameter of 4th and 12th dark rings are 0.4 cm and 0.7 cm, respectively. Calculate the diameter of 20th dark ring. 5
- (b) Give the construction and working of Fresnel's biprism with the help of a neat diagram. 5

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Explain the conditions for maxima and minima for diffraction at a single slit.

5

3. (a) What is a wave function ? What are the necessary conditions of Physically acceptable wave function ?

4

- (b) Establish the relation between group velocity, Phase velocity and Particle velocity.

6

Or

What is Compton effect ? Derive an expression for Compton shift.

6

4. (a) The frequency of 50 MHz is applied to dees of cyclotron. Calculate the magnetic induction to accelerate a particle of mass 1.602×10^{-27} kg.

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- (b) What is a Betatron ? Derive the betatron condition for successful acceleration of electrons.

6

Or

Describe a nuclear reactor. How does it work ?

6

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5. (a) What are cardinal points of a coaxial optical system ?

4

- (b) Describe construction and working of a Ramsden's eyepiece.

6

Or

Two thin convex lenses of focal lengths 12 cm and 4 cm are separated by 8 cm. Plot the positions of the cardinal points for the combination.

6

6. Discuss in detail Foebe's method for finding the coefficient of thermal conductivity of a metal bar.

Or

What is Stefan's law of radiation ? Give a laboratory method for determining Stefan's constant.

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