P26/HSC139/EE/20160522

Time : 3 Hours **Marks : 80**

Instructions :

1. All Questions are Compulsory.
2. Each Sub-question carry 5 marks.
3. Each Sub-question should be answered between 75 to 100 words. Write every questions answer on separate page.
4. Question paper of 80 Marks, it will be converted in to your programme structure marks.

1. Solve any **four** sub-questions.

   a) Explain terms : 5

      i) Depth of Field

      ii) Depth of focus

   b) Write a short note on relative spectacle magnification. 5

   c) Draw detailed labelled diagram of Gullstrand's schematic eye. 5

   d) Define and Explain : 5

      i) Angular Magnification

      ii) Pseudophakia

   e) What do you understand by "Vergence of Light"? Calculate vergence of image ray if object is placed at 40 cm behind a lens of +5.00D. 5

2. Solve any **four** sub-questions.

   a) Define and Classify Myopia. 5

   b) Explain terms : 5

      i) Facultative Hypermetropia

      ii) Absolute Hypermetropia

   c) Define and Classify Astigmatism. 5

   d) Write a note on Conoid of sturm. 5

   e) What are components of visual acuity? 5

3. Solve any **four** sub-questions.

a) Write in short about optical properties of Cornea. 5

b) What is effective power of spectacle? Also mention vertex distance formula to calculate the same. 5

c) Write a note on clinical picture of simple hypermetropia. 5

d) Draw diagram : 5

i) Compound myopic astigmatism

ii) Simple hypermetropic astigmatism

e) What are the various factors affecting visual acuity? 5

4. Solve any **four** sub-questions.

a) Solve the following : 5

i) Calculate vergence of light coming from an object placed at 50cm from an optical system kept under water.

ii) Calculate focal length of –6.50D lens.

b) A reduced eye has an axial length of 20.50mm. And a corneal radius of curvature is 5.30mm. Is this eye myopic, hyperopic or emmetropic? (Take n' = 4/3). 5

c) A prescription reads +5.50/+3.00×180 at 15mm. What spectacle lens power is needed if the vertex distance is reduced to 11mm. 5

d) A –3.00D myope has amplitude of accommodation of 5D. What is his range of accommodation? Would he need a spectacle correction when reading and why? 5

e) A spectacle lens has a front surface curve of +10.00D, a center thickness of 6mm, and refractive index of 1.523. What is its shape factor? 5

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