PSCPHYT16.2 / PSCPHT16.2 - Foundation Course (F2.2) - Paper-XVI : Optics and Optical Instruments

P. Pages : 1

Time : Three Hours

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GUG/W/22/11420

Max. Marks : 80

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Either:

1. a) Explain in details cardinal points of an optical system. **8**

b) Discuss the function of an eyepieces in an optical instrument. Discuss Ramsden and Huygens eyepiece. **8**

OR

e) What is aberration in images? Discuss chromatic and monochromatic aberration. **8**

f) Explain entrance and exit pupil. What is the need of multiple eyepieces? **8**

Either:

2. a) Explain the formation of Newton's ring. How Newton's rings are used for the determination of the refractive index of a liquid. **8**

b) Explain construction of Fresnel's half period zone of a plane wave front and show that half period zones have approximately equal areas. **8**

OR

e) Discuss Fraunhofer diffraction due to single slit. **8**

f) Derive an expression for resolving power of grating and prism. **8**

Either:

3. a) Discuss Lens and SLR camera. **8**

b) What is Binocular? Describe in details how it works. **8**

OR

e) Discuss collimator and compound microscope. **8**

f) Explain the principle and working of eyeglasses. **8**

Either:

4. a) What is holography? Describe how hologram is generated and images are reconstructed using off – axis configuration. **8**

b) Write a note on graded index fibre. **8**

OR

e) What is the basic principle of CT scanning and describe it's working. **8**

f) Discuss Doppler ultrasound. **8**

5. Answer all the following.

a) Write a short note on astronomical telescope. **4**

b) Explain Rayleigh's criterion for resolution with neat diagram. **4**

c) Explain periscope with labelled diagram and mentioned its applications. **4**

d) What are the factors affecting radiographs. **4**

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