

UG Odd Semester (CBCS) Exam., December—2016

B.Sc (Honours) B.Ed

( 5th Semester )

Course No. : BSPP-502/BSBP-502

*Full Marks : 50*

*Pass Marks : 20*

*Time : 2 hours*

*The figures in the margin indicate full marks  
for the questions*

Candidates are to answer *either* BSPP-502  
*or* BSBP-502

PHYSICS

( Pass )

Course No. : BSPP-502

( Waves, Oscillations and Optics )

1. (a) Differentiate between free and forced vibration. 5
- (b) Discuss the case of damped vibration with examples. 5

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( Turn Over )

OR

2. (a) What is Doppler effect? Illustrate the case when observer stationary and source moving. 2+3=5
- (b) A sound detector is placed on a railway platform. A train approaching the platform at a speed of  $36 \text{ kmh}^{-1}$ , sounds its whistle. The detector detects 12 kHz as the most dominant frequency in the whistle. If the train stops at the platform and sounds the whistle, what would be the most dominant frequency detected? The speed of sound in air is 340 m/s. 5
3. (a) State and prove Fermat's principle. 5
- (b) Deduce the laws of reflection for plane surface using Fermat's principle. 5

OR

4. (a) Find the expression for focal length of two thin lenses separated by a small distance. 5
- (b) Differentiate between monochromatic and chromatic aberration. 5

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( Continued )

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5. (a) Define sustained interference with examples. 5  
(b) Discuss the conditions of sustained interference. 5

**OR**

6. (a) Explain the methods for production of interference fringes by biprism. 5  
(b) Find the minimum thickness of a film which will strongly reflect the light of wavelength 589 nm. The refractive index of the material of the film is 1.25. 5

7. (a) What is diffraction? State Fresnel diffraction. 2+3=5  
(b) Discuss Fresnel half-period zone. 5

**OR**

8. (a) Illustrate Fresnel diffraction at straight edge. 5  
(b) Discuss the case of limit of resolution. 5
9. (a) Define polarisation with examples. 5  
(b) Differentiate between polarised and unpolarised light. 5

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**OR**

10. (a) Illustrate construction and working of polaroids. 5  
(b) Describe construction and working of polarimeters. 5

**BOTANY**

( Pass )

Course No. : BSBP-502

**( Structure, Development and Reproduction  
in Flowering Plants )**

1. (a) Give a comparative account of annual, biennial and perennial plants. 5  
(b) Explain the convergence of evolution of tree habit in monocotyledons. 5

**OR**

2. (a) Distinguish between monocotyledon and dicotyledon plants. 5  
(b) "Tree is the largest and longest organism." Justify. 5

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( Continued )

( 5 )

3. (a) Describe the histological organization of shoot apical meristem. 5  
(b) Write a short note on the formation of secondary xylem. 5

**OR**

4. (a) Give a general account of wood structure in relation to conduction of water. 5  
(b) Discuss the characteristics of growth ring. 5

5. (a) Illustrate the internal structure of leaf in relation to photosynthesis. 5  
(b) Write a note on senescence and abscission. 5

**OR**

6. (a) Describe the histology of root apical meristem. 5  
(b) Distinguish between primary and secondary tissues of roots. 5

7. (a) Explain the mechanism of development of flower. 5  
(b) Write a short note on female gametophyte of plant. 5

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( Turn Over )

( 6 )

**OR**

8. (a) Describe the mechanism of pollen-pistil interaction. 5  
(b) Write a short note on double fertilization in plant. 5

9. (a) What is ecological adaptation? Explain with suitable examples. 5  
(b) Describe the significance of the unit of genetic recombination. 5

**OR**

10. (a) Write a short note on endosperm and embryo. 5  
(b) What are the various dispersal strategies? Explain. 5

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