CSE 409 (Computer Graphics)

CT : 3 Date : 27-07-2019
Marks: 20 Time: **25 mins**

Student Id : _____

1. Suppose a scene is bathed with a light source having RGB components (0.25, 0.35, 0.4). The relative intensities of ambient, diffuse, and specular light present in the scene are 0.2, 0.4, and 0.4 respectively. A spherical object with shininess exponent equal to 2 is present in the scene whose color is 70% red, 20% green, and 10% blue. Now consider a point P on the sphere according to the following figure: **10**

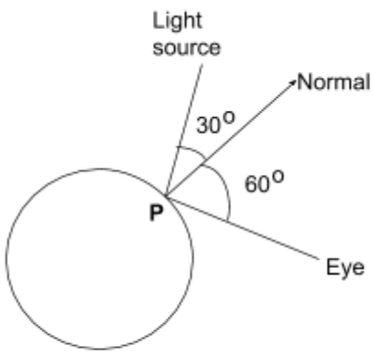

Image not drawn on scale

Calculate the color intensities of point P observed by the eye according to Phong model.

2. Suppose you are rendering a scene using ray tracing. The position of the eye is at (3,5,2). A particular ray is cast through a pixel whose center is at (12,24,16). There is a sphere in the scene with the center at (20,40,30) and radius 10. Determine the point on the sphere which will be visible to the eye for this particular ray. Also, determine the direction of the reflected ray at the point of intersection. **10**