#### VIDYA BHAVAN, BALIKA VIDYAPEETH

### SHAKTI UTTHAN ASHRAM, LAKHISARAI, PIN:-811311

SUBJECT:- PHYSICS CLASS:- XTH DATE:18/07/XX

#### SUBJECT TEACHER:- MR. NEEL NIRANJAN

## CHAPTER 5. (LIGHT- REFRACTION) (BASED ON NCERT PATTERN)

Q.1. Draw a diagram and determine the nature and focal length of a spherical lens which forms three times magnified real image of an object placed 16 cm from the lens.

Answer.

• According to question,  

$$u = -16 \text{ cm}, m = -3$$
  
(real image)  
But  $m = \frac{v}{u}$   
 $= -3$   
 $\Rightarrow v = -3u$   
 $= -3 \times (-16)$   
 $= 48 \text{ cm}$ .

So, focal length of the given spherical lens is 12 cm. The positive sign of focal length shows that the nature of spherical lens is convex.

# Ray diagram:

