

19003/187

8.

The wavelength  $\lambda$  of visible light is in the range of 4000-5000  $\text{\AA}$ . Then

$$\text{Energy of } 4000 \text{ \AA light} = \frac{hc}{\lambda} = \frac{(6.626 \times 10^{-34} \text{ Js}) (3 \times 10^8 \text{ m/s})}{(4000 \times 10^{-10}) \text{ m}} \times (1.6 \times 10^{-19} \text{ J/eV})$$

$$= 3.106 \text{ eV}$$

$$\text{Energy of } 7000 \text{ \AA light} = \frac{6.626 \times 10^{-34} \times 3 \times 10^8}{7000 \times 10^{-10} \times 1.6 \times 10^{-19}} = 1.77 \text{ eV}$$

The work function of tungsten is 4.2 eV which is more than energy range of visible light. Hence barium is the only material useful for the purpose.