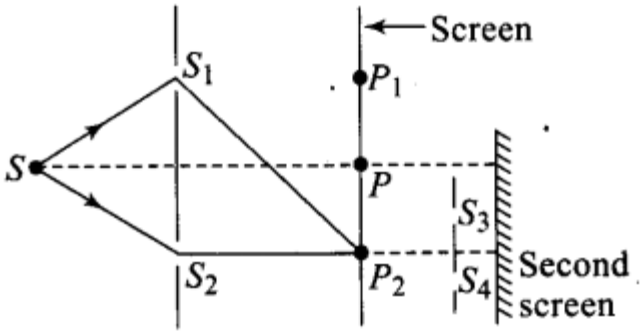
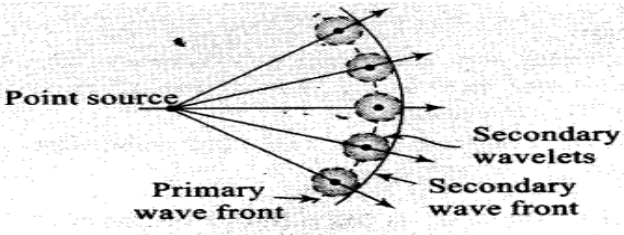
# Exemplar Problems

**Question 5. Figure shows a standard two slit arrangement with slits $S_1$, $S_2$, $P_1$, $P_2$ are the two minima points on either side of P (figure).**




**At $P_2$ on the screen, there is a hole and behind $P_2$.is a second 2-slit arrangement with slits $S_3$, $S_4$ and a second screen behind them.**
**(a) There would be no interference pattern on the second screen but it would be lighted**
**(b) The second screen would be totally dark**
**(c) There would be a single bright point on the second screen**
**(d) There would be a regular two slit pattern on the second screen**
**Solution:** (d)
Key concept:
Wave front
Every point on the given wave front acts as a source of new disturbance called secondary wavelets which travel in all directions with the .velocity of light in the medium.
A surface touching these secondary wavelets tangentially in the forward direction at any instant gives the new wave front at that instant. This is called secondary wave front.In the given question, there is a hole at point which is a maxima point. From Huygen's principle, wave will propagate from the sources $S_1$ and $S_2$. Each point on the screen will act as secondary sources of wavelets.




- **The wave front emitted by a narrow source is divided in two parts by reflection, refraction or diffraction. The coherent sources so obtained are imaginary.**