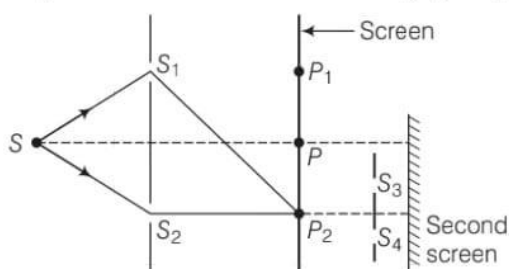


Exemplar Problem with Solution :

Q. 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

Ans. (d) According to question, there is a hole at point P_2 . 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.

Now, there is a hole at point P_2 (minima). The hole will act as a source of fresh light for the slits S_3 and S_4 .

Therefore, there will be a regular two slit pattern on the second screen.