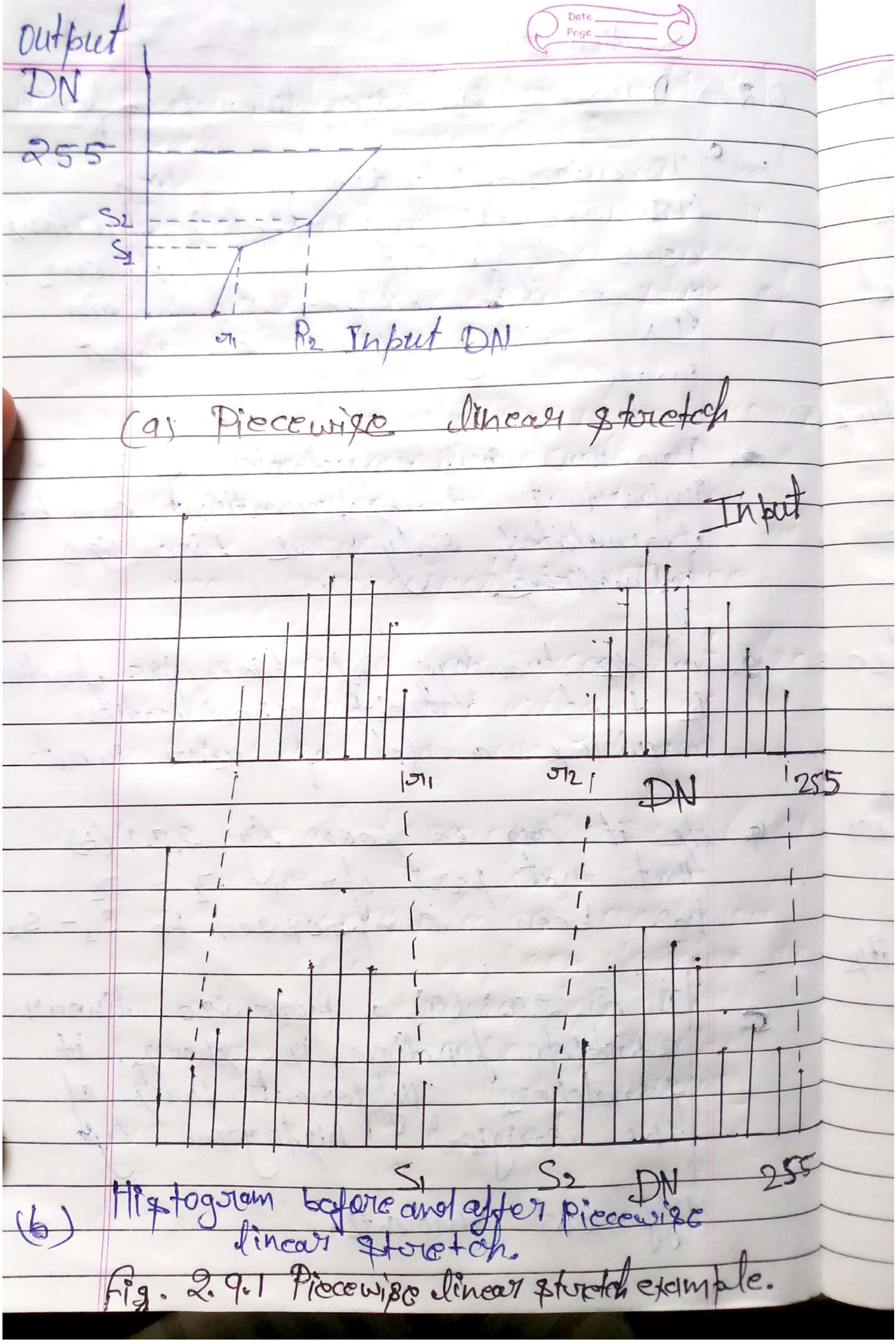
Section ☒ 4

Q.2 ⇒ Answer ⇒ Piecewise - liner transformation

⇒ Piecewise - liner transformation (Pipewise liner stretch) functions uses different liner functions to stretch different domain (DN) ranges of an input image.

- Practical implementation of some important transformation can be formulated only as piecewise functions.
- A disadvantage of piecewise function is that their specification requires a lot of user input.
- As it can be seen fig. 2.9.1 (b) that that part from $r_1 - r_2$ has been compressed to $S_1 - S_2$.
- In fig. 2.9.1 (a) a piecewise linear stretch function is shown, it stretches different parts of the original histogram by different amounts.



(a) Piecewise linear stretch

(b) Histogram before and after piecewise linear stretch.

Fig. 2.9.1 Piecewise linear stretch example.

- Piecewise Linear Stretch (PLS) is a versatile point operation function. It can be used to simulate a non-linear function that cannot be easily defined by a mathematical function.

- Most image processing software packages have interactive PLS functionality allowing users to configure PLS for optimized visualization.