3 **(a)** Explain the difference between *accuracy* and *precision* and state the type of error associated with each.

(i) Accuracy:

.....

.....

Type of error:

.....

(ii) Precision:

.....

.....

Type of error:

.....

[2]

(b) Three digital clocks A, B and C are being tested in a laboratory. Using signals from the Global Positioning System, the displays on the clocks at the exact time of 12:00:00 on four successive days are shown in **Fig. 3.1**. The clocks are reset each day at 00:00:00.

Clock	Day 1	Day 2	Day 3	Day 4
A	12:06:40	12:06:38	12:06:39	12:06:43
B	12:03:59	12:02:49	12:01:54	12:03:15
C	11:59:59	12:00:02	11:59:57	12:00:05

Fig. 3.1

State and explain,

(i) which clock is the most accurate,

.....

.....

.....

[1]

(ii) which clock is the most precise.

.....

.....

.....

[1]

(c) For clock B in **(b)**, estimate the time displayed at 12:00:00 on day 5 with its associated uncertainty.

time = ... ± ..... s [2]

[Total: 6]