7 A fitness club has a computerised membership system. The fitness club offers a number of different exercise classes.

The following information is stored for each club member: name, home address, email address, mobile phone number, date of birth and the exercise(s) they are interested in.

(a) When an exercise class is planned, a new module will send personalised text messages to each member who has expressed an interest in that exercise. Members wishing to join the class send a text message back. Members may decide **not** to receive future text messages by replying with the message 'STOP'.

The process of abstraction is used to filter out unnecessary information.

(i) State **one** advantage of applying abstraction to this problem.

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..... [1]

(ii) Identify **three** items of information that will be required by the new module.
Justify your choices with reference to the given scenario.

Item 1 required .....

Justification .....

.....

Item 2 required .....

Justification .....

.....

Item 3 required .....

Justification .....

.....

[3]

(iii) Identify **two** operations that would be required to process data when the new module receives a text message back from a member.

Operation 1 .....

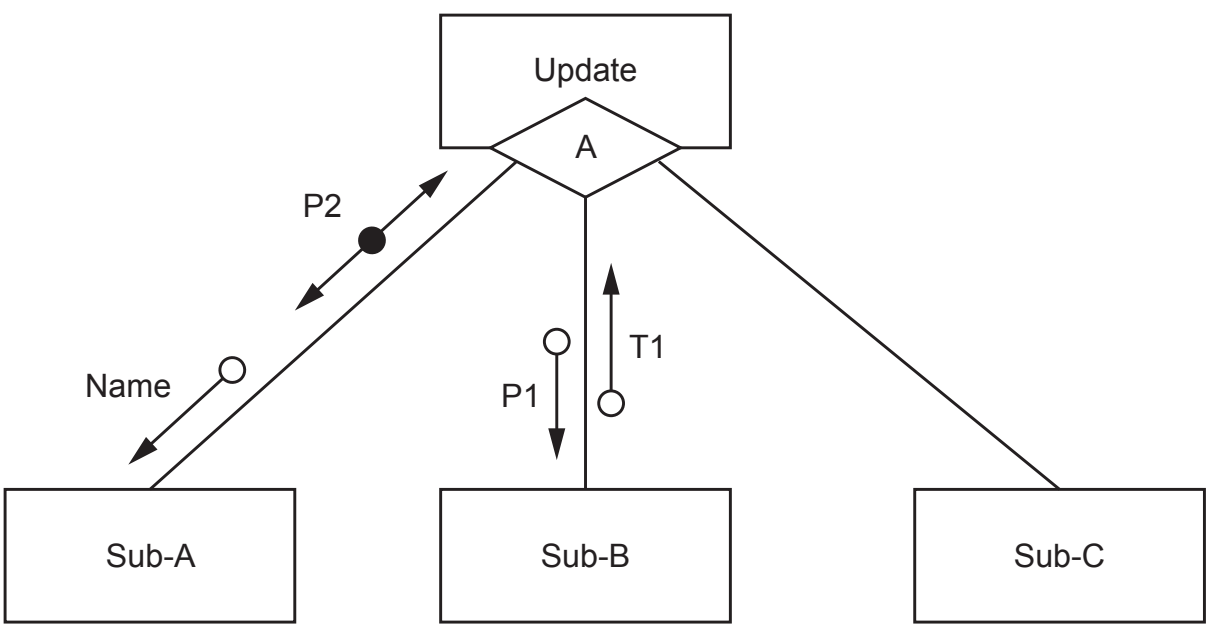
.....

Operation 2 .....

.....

[2]

(b) The structure chart illustrates part of the membership program:



Data item notes:

- Name contains the name of a club member
- P1 and T1 are of type real.

(i) Explain the meaning of the diamond symbol (labelled with the letter A) in the chart.

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..... [2]

(ii) Write the pseudocode module headers for Sub-A and Sub-B.

Sub-A

.....

.....

Sub-B

.....

.....

[4]