MSM Assignment 1 (Test 1) Name:



Scripts with **NO** Names will not

be marked/returned Student No.:



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**Management Science Methods**

**UOL DEGREE PROGRAMME**

**2025/2026 Intake**

**TEST 1 (1 Hour 30 Mins)**

**Question 1 (25 marks)**

A company is planning a small project for a particular client and the following table gives the various activities in that project, as well as their associated completion times:

|  |  |
| --- | --- |
| **Activity** | **Completion Time (days)** |
| A | 2 |
| B | 7 |
| C | 1 |
| D | 5 |
| E | 3 |
| F | 6 |
| G | 8 |

Here, for example, activity B takes 7 days to be completed. The immediate precedence relationships are:

|  |  |
| --- | --- |
| **Activity must be finished** | **before Activity can start** |
| A | C, E |
| C | B |
| E | B |
| F | A, D |

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In addition, two other conditions (X1, X2) must apply:

* Condition X1: 3 days must elapse between the end of activity D and the start of activity G
* Condition X2: 4 days must elapse between the end of activity E and the start of activity G

1. Draw the network diagram (also set up the legend) and calculate the overall project completion time. State the critical path(s). (9 marks)
2. Copy the following table into your answer script and fill in the latest start times and the float times. (6 marks)

|  |  |  |
| --- | --- | --- |
| **Activity** | **Latest Start Time (days)** | **Float Time (days)** |
| A |  |  |
| B |  |  |
| C |  |  |
| D |  |  |
| E |  |  |
| F |  |  |
| G |  |  |

1. If the completion time for activity D increases to become 6 days what effect would this have on the overall project completion time? (2 marks)
2. Ignoring part (c) above, suppose now that:
   * Condition X1 can change to: 2 days must elapse between the end of activity D and the start of activity G; changing this condition will cost £450
   * Condition X2 can change to: 3 days must elapse between the end of activity E and the start of activity G; changing this condition will cost £600

How much should the company expect to spend to achieve the minimum possible project completion time?

For your minimum possible project completion time copy the following table into your answer script and fill in the latest start times.

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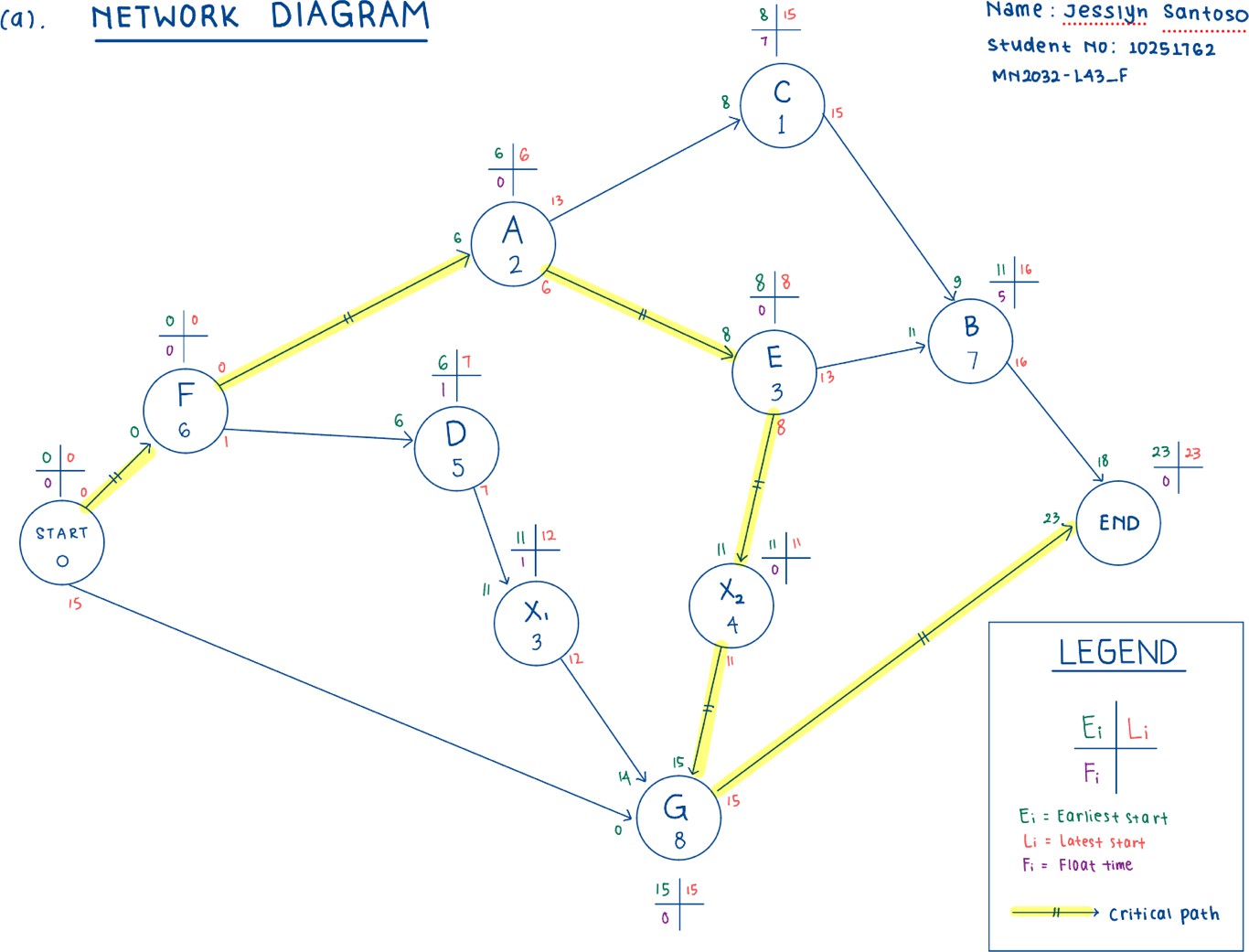
MN2032-L43\_F /

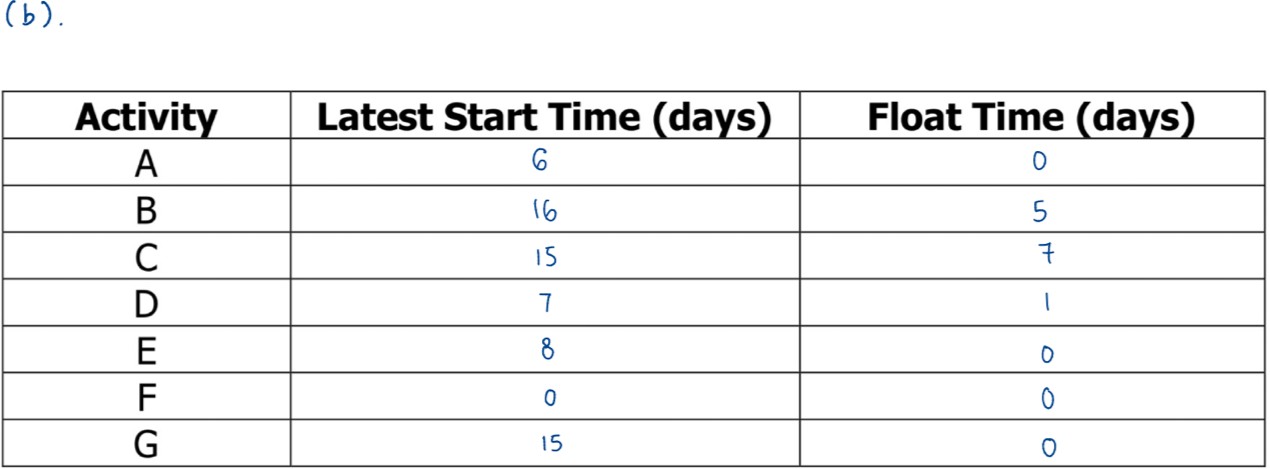
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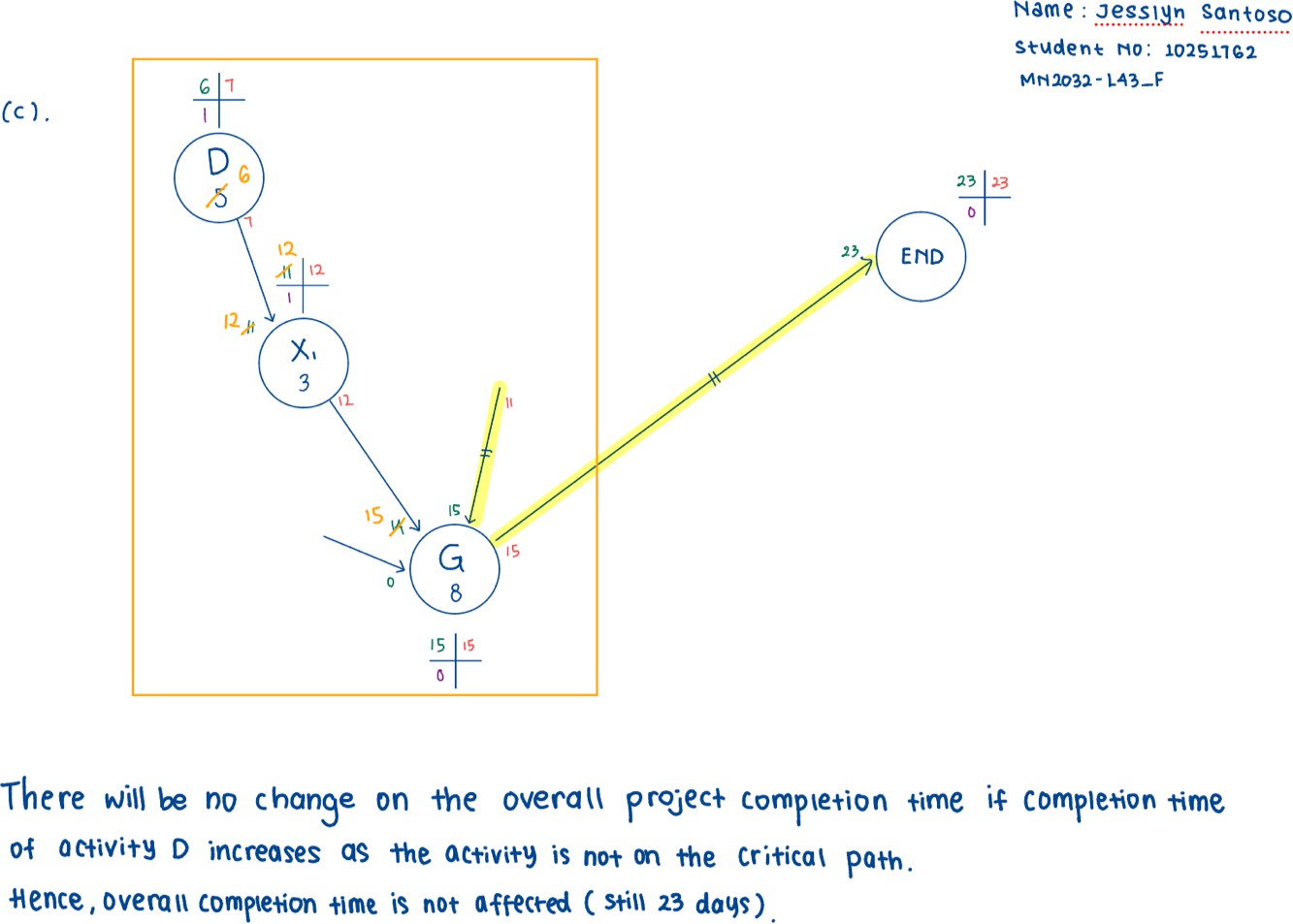
|  |  |
| --- | --- |
| **Activity** | **Latest Start Time (days)** |
| A |  |
| B |  |
| C |  |
| D |  |
| E |  |
| F |  |
| G |  |

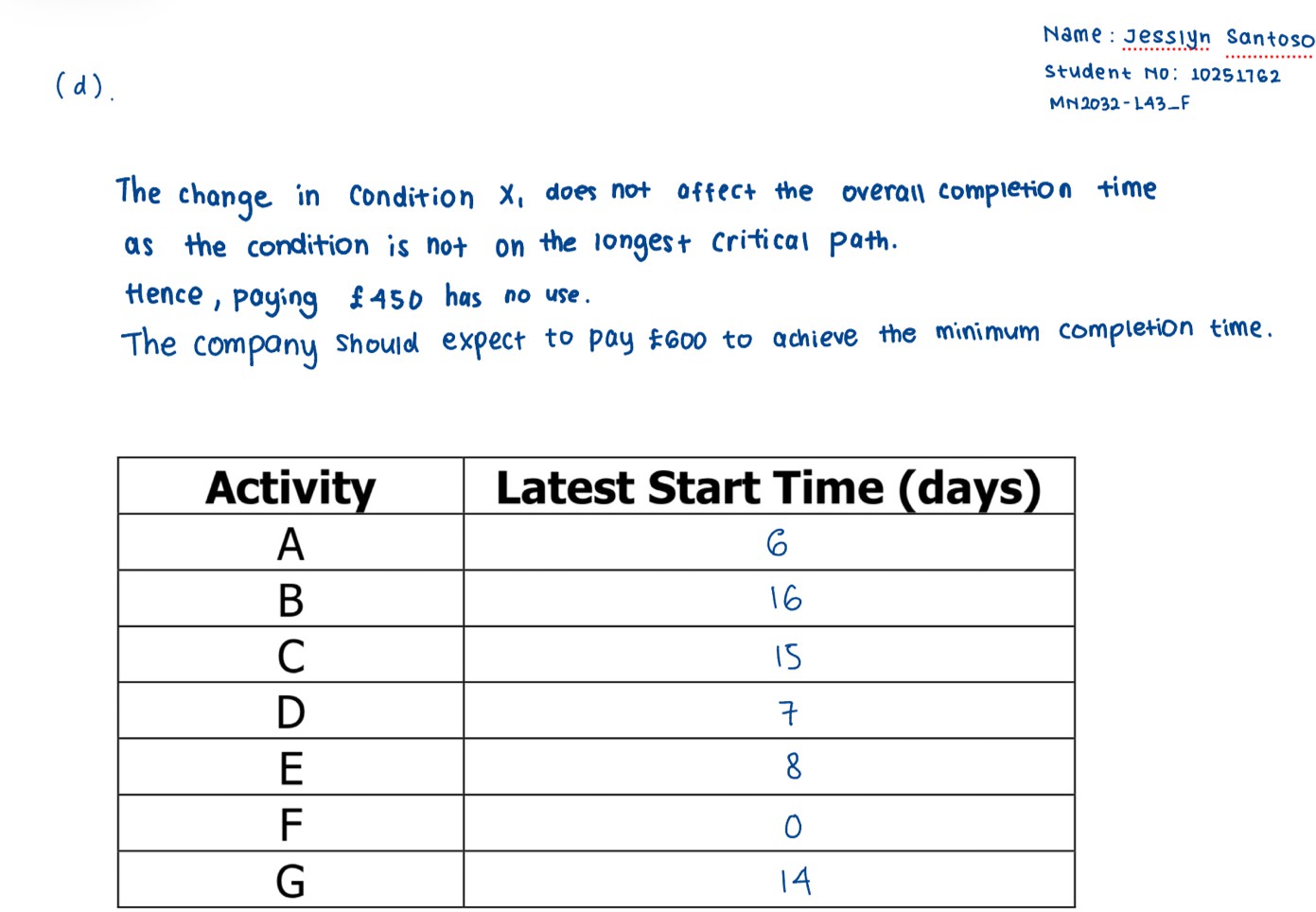
State the critical path(s) associated with this minimum possible project completion time. (8 marks)

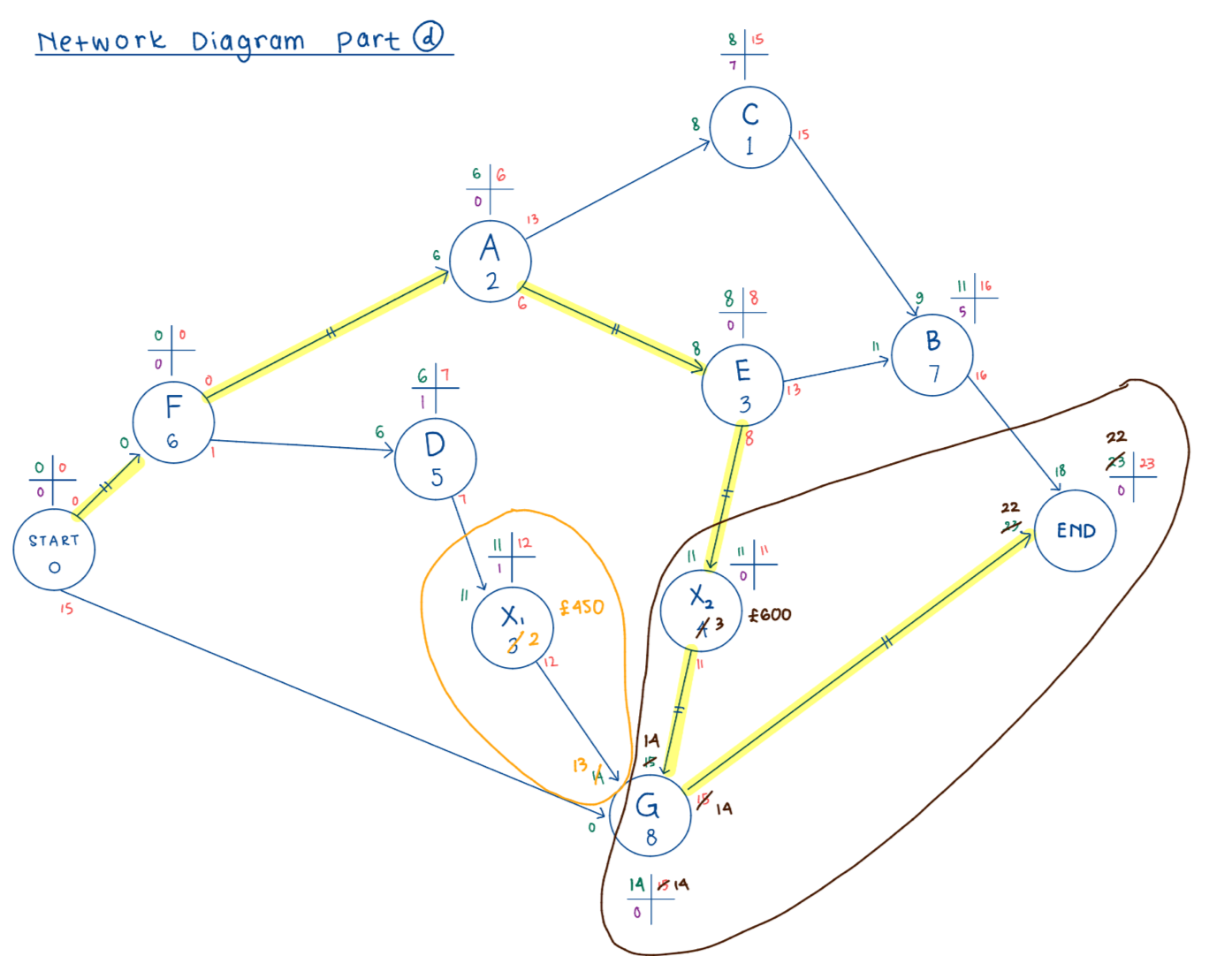
*End of Test*



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