Loughborough University

Management of Design and Construction

24CVB103

Semester 2 2025 In-Person Exam Paper

This examination is to take place in-person at a central University venue under exam conditions. The standard length of time for this paper is **2 hours**.

You will not be able to leave the exam hall for the first 30 or final 15 minutes of your exam. Your invigilator will collect your exam paper when you have finished.

Help during the exam

Invigilators are not able to answer queries about the content of your exam paper. Instead, please make a note of your query in your answer script to be considered during the marking process.

If you feel unwell, please raise your hand so that an invigilator can assist you.

You may **not** use a calculator for this exam.

Section A, question 1 is compulsory – you MUST answer this question.

Answer **TWO** questions from Section B.

All questions carry equal marks.

Continues/…

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SECTION A
(Answer **THIS** question)

1. a) Discuss in detail the five aspects of the Hierarchy of Risk Management.

[10 marks]

b) List eight uninsured costs which could be incurred as a result of having an accident on site.

[8 marks]

c) Making reasonable assumptions, create a Risk Assessment matrix and populate it for a simple reinforced concrete slab pour and discuss the mitigating actions that may arise.

[16 marks]

SECTION B
(Answer **TWO** questions)

2. a) Inspection of tender documents is a vital step before the contractor makes a final decision to tender. Analyse the main aspects which the estimating team should explore within the tender documents before making the decision to tender demonstrating the impact which these aspects could make on the estimate.

[16 marks]

b) Deciding on the method statement of the project has a significant influence on managing the cost of temporary works. Discuss the importance of the method statement in construction projects and the factors which the contractor should consider when deciding on the method statement for a construction project.

[17 marks]

3. a) Explain the purpose of function analysis.

[8 marks]

b) Use the function analysis to analyse the functions performed by the front door to the building in which you live. Present your analysis as a list comprising an appropriate number of functions expressed in accordance with the principles of function analysis.

[10 marks]

c) Explain the purpose of value engineering when applied in the late stages of design development and during construction on a construction project.

[8 marks]

d) Explain the purpose of value management.

[7 marks]

Continues/…

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4. a) Explain how the Job Plan and the Double Diamond approach to problem solving align.

[10 marks]

b) Explain the purpose of a value management workshop.

[9 marks]

c) Recommend two ways by which sensemaking can be accommodated in the design and/or facilitation of a value management workshop.

[6 marks]

d) Explain how the values of the client body are represented in a weighted evaluation matrix.

[8 marks]

5. a) Figure Qu 5(a) below and attached is a network diagram. Calculate the **earliest start time**, **earliest finish time**, **latest start time**, **latest finish time**, **total float** for each activity. Please identify the **total project duration**, **critical path** and briefly explain the meaning of critical path. Submit the template on page **5** to show how you identify the above-mentioned items.

[16 marks]

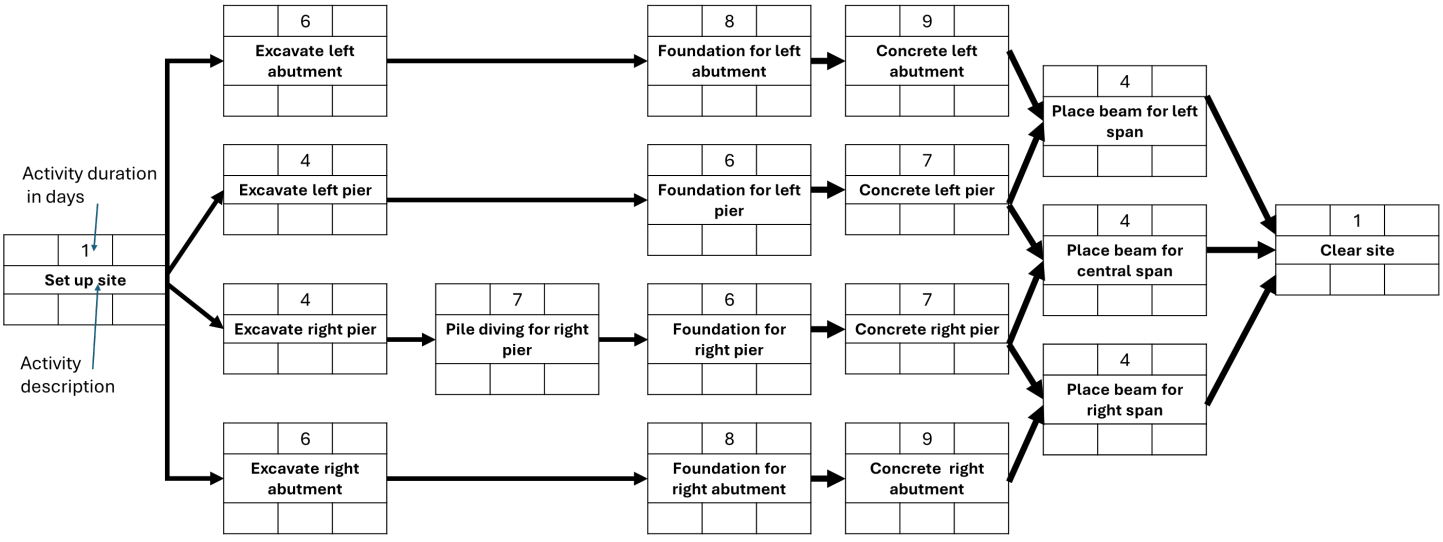

Figure Qu 5(a): Network diagram for a simple highway bridge

b) Briefly discuss the role of various types of resources implemented in the construction projects. Please articulate the tools and methods available to ensure efficient resource management on construction sites; please briefly explain how these tools and methods function to optimise resource utilisation.

[7 marks]

Question 5 continues/…

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c) As a Project Manager you receive the table below showing the status of the projects under your control.

Project	BCWS	ACWP	BCWP
1	1000	1000	900
2	1350	1100	1600
3	1400	500	800
4	1300	1900	1700
5	750	750	750

(All figures in £x'000)

Please Comment on the **time** and **cost status** of each project.

[10 marks]

T Hassan
L Hsu
J MacKenzie
D Thompson

Continues/…

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24CVB103 Principles of Design and Construction

Student ID Number ……

Submit this template with your Qu 5(a) solution.

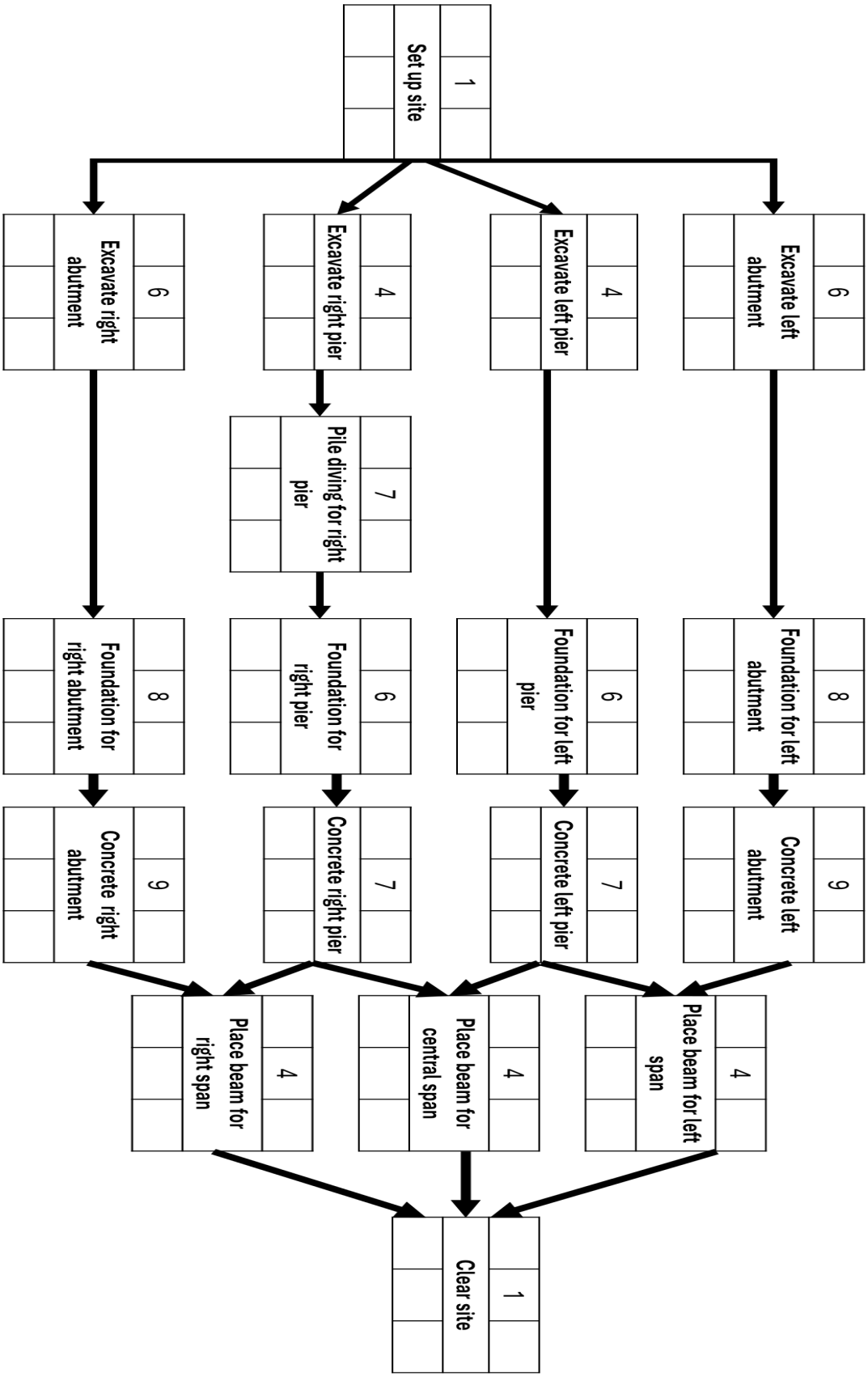

Figure Qu 5(a): Network diagram for a simple highway

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