

# T Level Technical Qualification in **Construction: Design, Surveying and Planning**

## **Core Knowledge and Understanding**

### Topic test 1: Health and Safety & Measurement



**Answer ALL questions. Write your answers in the spaces provided.**

- 1 The Health and Safety Executive has the power to impose sanctions on companies for non-compliance of legislation and regulations.

These include sanctions such as prohibition notices and improvement notices.

- (a) State **two other** sanctions that the Health and Safety Executive can impose on a company following a workplace incident.

(2)

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2 .....

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- (b) Give **two** examples of personal protection equipment (PPE) that should be used when working at height to prevent people from falling.

(2)

1 .....

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2 .....

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(c) Explain **two** reasons why a construction company would complete and implement a safety review.

(4)

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2 .....

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**Total marks for Question 1: 8 marks**

2 A housing developer has construction sites throughout the country. Table 1 shows data for non-fatal construction-related accidents on the housing developer’s sites.

Type of accident	% of non-fatal injuries		
	Total of non-fatal injuries	Of which...	
		Specified (reportable)	Over-7-day incapacitation
<i>Slips, trips or falls on same level</i>	25%	30%	22%
<i>Injured while handling, lifting or carrying</i>	19%	7%	26%
<i>Falls from a height</i>	19%	33%	11%
<i>Struck by moving, including flying/falling, object</i>	12%	13%	11%
<i>Contact with moving machinery</i>	6%	3%	8%
<i>Other</i>	19%	10%	9%

**Table 1**



Explain **one** way that the developer would use the accident data to reduce injuries on the construction sites.

(3)

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**Total marks for Question 2: 3 marks**

3 A building services contractor carries out electrical installation work on building projects, that includes the installation of ring main lighting and power circuits.

The contractor uses a range of approaches to make work activities safer for their employees.

(a) Explain **one** way that a method statement can improve workplace safety.

(2)

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Safe systems of work used by the contractor are reviewed on a regular basis based on feedback from employees.

(b) Explain **one** reason why feedback from employees can improve safe systems of work.

(3)

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**Total marks for Question 3: 5 marks**

4 The owner of a factory has plans to expand their business. Part of the expansion includes the construction of a new warehouse to store finished goods. The new warehouse will have overhead lighting suspended from the ceiling.

Explain **two** reasons why a risk assessment will be needed before installing the overhead lighting.

(4)

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**Total marks for Question 4: 4 marks**



5 A housing developer has identified a piece of land between existing properties that would be suitable for building two detached houses.

The construction phase of the project will involve specialist contractors installing solar hot water systems on the roofs of the houses. The principal designer will produce a health and safety file for use during the construction phase of the project.

Explain **one** benefit of the health and safety file to the specialist contractors installing the solar hot water system.

(3)

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**Total marks for Question 5: 3 marks**



## Measurement

6 A civil engineering contractor has been appointed by a client to design and build a new sports hall for a college in an overseas location.

(a) List **two** benefits of following International Construction Measurement Standards (ICMS) for projects in overseas locations.

(2)

1 .....

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2 .....

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The college is close to an airport. When the new building is completed, and prior to the building being occupied, the developer plans to check noise levels inside the building from outside sources.

(b) Explain **one** method of recording the data.

(2)

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**Total marks for Question 6: 4 marks**





7 A health authority has decided to relocate a number of small health centres to a new central health centre. The new health centre is designed to be a 'smart building' with embedded systems to measure and report performance indicators such as running costs.

(a) Explain **one** benefit to the health authority of accurate measurement and reporting of running costs of the new health centre.

(2)

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As the electrical installation work proceeds in the new health centre, a building services engineer will be required to take and record measurements of the alternating current (a.c.) in ring main circuits.

(b) Explain **one** technique for measuring a.c. voltages in electrical circuits.

(2)

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**Total marks for Question 7: 4 marks**



8 A contractor has won the contract to design and build a large enclosed structural steel-framed barn to replace a series of existing farm buildings. The barn will contain farm animals.

Explain **one** advantage of following New Rules of Measurement (NRM1) when producing cost estimates for the construction of large agricultural buildings.

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**Total marks for Question 8: 3 marks**

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**Total mark for paper: 34 marks**