

UNIVERSITY OF BOLTON
SCHOOL OF ENGINEERING
BENG (HONS) CIVIL ENGINEERING
SEMESTER 1 EXAMINATION 2022/2023
CONSTRUCTION MANAGEMENT
MODULE NO: CIE6007

Date: Wednesday 11th January 2023

Time: 14:00 – 17:00 (3hrs)

INSTRUCTIONS TO CANDIDATES:

There are **SIX** questions.

Answer **Question 1 (compulsory)** and **any other three questions** (a total of four questions).

All questions carry equal marks.

Marks for parts of questions are shown in brackets.

This examination carries a total of 100 marks.

All working must be shown where necessary. A numerical solution to a question obtained by programming an electronic calculator will not be accepted.

Page 3 (Question 6A) can be removed and added to your answer booklet once completed. Please add your Student ID number.

School of Engineering
BEng (Hons) Civil Engineering
Semester One Examination 2022/2023
Construction Management
Module No. CIE6007

1. The construction industry is passionate about adherence to health and safety on projects. Critically discuss why all construction firms should share the same passion and how they might achieve compliance. (**Compulsory Question**).
25 marks
2. The construction industry is vast in different respects. Critically appraise its activities/actors with a view to providing appropriate categorisations of the industry. Fit your discussion with example projects to aid clarity.
25 marks
3. Insolvencies of construction firms have been a cause for concern in the industry. Critically discuss how Project Bank Accounts may provide some solutions citing relevant examples of where problems might persist.
25 Marks
4. One important change introduced moving from NEC3 to NEC4 is in the terminology such as 'Works Information' becoming 'Scope'. Provide a convincing argument to support this change, critically explaining the importance of Scope on NEC4 administered projects using relevant clauses.
25 marks
5. Leadership is critical for the success of all endeavours and tasks involving teams. Critically discuss how Construction Managers may apply relevant management/leadership styles in leading construction teams to achieve success on projects
25 marks

Please turn the page...

School of Engineering
 BEng (Hons) Civil Engineering
 Semester One Examination 2022/2023
 Construction Management
 Module No. CIE6007

PLEASE ADD STUDENT ID NUMBER: _____

Completed question page should be added to your answer booklet.

6. (a) A Contractor (Deane Plc) and its Client (Chansco) entered into a negotiated contract to build a retaining wall for holding earthwork at the rear boundary of a property. Deane Plc developed the rates for the job as shown in Table 1 based on flat time of 1893.8 hours a year, making allowances for overtime, holiday and sick pay. Compute (complete asterisked spaces) the hourly labour rate for tradesmen and general operatives that will be involved in executing the job.

Description	Hours or days	Tradesman		General operative	
		£ rate	£ total	£ rate	£ total
Flat time	1893.8 hrs	15.46	*	10.87	*
Non-productive overtime	65.5 hrs	15.46	*	10.87	*
Public holidays	63 hrs	15.46	*	10.87	*
Holiday pay allowance	176 hrs	15.46	*	10.87	*
Sick pay	5 days	31.43	*	31.43	*
Sub-total			*		*
Employers national Insurance Contribution			2858.00		1522
Training allowance 0.5% of PAYE			*		*
Sub-total			*		*
Severance pay and other statutory costs 2%			*		*
Employers' liability insurance 2%			*		*
Total cost of 1856 productive hours			*		*
Total labour cost per hour			*		*

7 marks

Question 6 continues over the page

Please turn the page...

School of Engineering
BEng (Hons) Civil Engineering
Semester One Examination 2022/2023
Construction Management
Module No. CIE6007

...Question 6 continued

(b) Deane Plc inserted a rate of £105 per m² for formwork to the retaining wall based on the agreement of a 13.5% for overheads, profit and risk combined. The retaining wall was assumed to be 30 bays which is 10 m long by 3 m high each making a total of 1800 m² with formwork required on both sides. Before construction work commenced, the engineer issued a variation order reducing the retaining wall to 20 bays after two sets of purpose-built shutters for the two sides of the retaining wall had been ordered. The capital cost allowed for the 10 m x 3 m purpose-built steel shutters was £26,000.

Calculate the revised rate for this varied work allowing necessary assumptions.

(8 marks)

(c) In the light of this job on retaining wall and other wider considerations, provide a critical commentary on likely implications of variation on civil engineering contracts.

(10 marks)

13 marks

Total 25 marks

END OF PAPER