

Planning, Estimating and Cost Management

22CVB110

Semester 2 2023

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 use a calculator for this exam. It must comply with the University's Calculator Policy for In-Person exams, in particular that it must not be able to transmit or receive information (e.g. mobile devices and smart watches are **not** allowed).

Answer **ONE** question from each of **SECTIONS A** and **C**. **SECTION B** is compulsory.

All questions carry equal marks.

Continues/...

.../continued

SECTION A
(Answer **ONE** question)

1. (a) Other than skill shortages, identify and discuss **three** major challenges facing the UK construction industry. Discuss how recent industry reports recommend addressing the three challenges.

[9 marks]
 - (b) Skills shortages are a major challenge for many UK contractors. You are a Project Manager with a project due to start in a few months. Discuss how you would approach the management of your site resources to make sure you have the resources needed in the required quantity, with the right skills and at the right time for your project.

[9 marks]
 - (c) Explain the importance of monitoring a project's progress. Discuss three tools available for reducing a project's duration if it is running late.

[9 marks]
 - (d) Identify and describe four important reasons for using Computer Aided Estimating software, such as Candy, in preparation of tender for construction projects.

[6 marks]
-
2. (a) Your employer is a construction contractor tendering for a new multi-storey building. The contractor's Senior Planners are arguing about which planning technique should be used for the Master Programme. The short list consists of Gantt Charts, Precedence Diagrams and Line of Balance Diagrams. Explain these techniques in simple terms and provide arguments on how you would convince the Planners to choose the most appropriate technique.

[9 marks]
 - (b) You are the Project Manager employed by a leading UK construction contractor. Your company intends to form an International Joint Venture with a French firm to tender for a major new hospital. Identify and explain **three** important tasks that need to be undertaken leading up to the tender submission. For each identified task, explain how responsibilities should be allocated between the Joint Venture partners to ensure that the most appropriate firm undertakes that task.

[9 marks]
 - (c) (i) Explain the consequences of not satisfactorily monitoring a project's progress.

[3 marks]

Question 2 continues/...

.../question 2 continued

- (ii) As the Managing Director of a construction organisation, you have decided to use the Earned Value Analysis technique to monitor your projects. The monthly report below shows the data for three projects. Comment on the status of each project.

| Project | BCWS | ACWP | BCWP |
|---------|------|------|------|
| 1 | 1000 | 1000 | 800 |
| 2 | 1000 | 800 | 1200 |
| 3 | 1000 | 1200 | 800 |

[6 marks]

- (d) Explain the types of delay events and give **two** examples of each type of delay.

[6 marks]

SECTION B
(Answer **THIS** question)

3. (a) In the context of the MERIT simulation explain what constitutes a company's Capital Base and explain why this is important.

[10 marks]

- (b) Explain why it is important to have "retained profit" and the different options for its use in MERIT.

[11 marks]

- (c) Identify and discuss the factors that affect the choice of domestic labour and sub-contract labour in staffing on-going projects in MERIT.

[12 marks]

Continues/...

.../continued

SECTION C
(Answer **ONE** question)

4. (a) For contractors to produce a successful estimate, estimators need to identify various categories of fixed and time related overheads. Discuss four categories of project overheads and explain the difference between fixed and time related overheads.
[16 marks]
- (b) Provisional sums are included in the contractor's estimate after pricing the Bill of Quantities items:
- (i) Critically, discuss what is meant by 'provisional' sums within the context of contractor estimating for construction projects.
[5 marks]
- (ii) Identify **three** categories of provisional sums giving an example for each category.
[12 marks]
5. The decision to tender for a construction project is a critical decision made by the contractor in consultation with their estimating team.
- (a) Explain the key personnel within the contractor's organisation who constitute the estimating team and should be consulted before taking this decision. Explain the type of information they should provide.
[12 marks]
- (b) Using 'all in' rates is one method to price the Bill of Quantities. Explain what is meant by 'all in' rates and what they should comprise for pricing each of materials, labour and plant.
[21 marks]

P M Carrillo
T Thorpe
T Hassan