



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION  
SEMESTER II  
SESSION 2013/2014**

COURSE NAME : SUSTAINABLE CONSTRUCTION  
MANAGEMENT  
COURSE CODE : BFC 32703  
PROGRAMME : 3 BFF / 4 BFF  
EXAMINATION DATE : JUNE 2014  
DURATION : 3 HOURS  
INSTRUCTION : A) ANSWERS **ALL** QUESTIONS  
IN SECTION A AND B.  
B) ANSWER **ONE (1)** QUESTION  
IN SECTION C.  
C) WRITE ALL ANSWERS IN  
THE ANSWER SCRIPT.  
D) ATTACH FIGURE **Q2** AND **Q3**  
IN YOU ANSWER BOOKLET.

THIS QUESTION PAPER CONSISTS OF **TWELVE (12)** PAGES

**SECTION A**

**Q1** Choose the correct answers.

1. The collection of project's critical components, i.e. cost, time, quality, scope and resources should be in equilibrium in order to achieve overall \_\_\_\_\_.  
A. project completion  
B. sustainable project  
C. project success  
D. client's satisfaction
  
2. Choose the correct sequence of the following project phases.  
I Decision to release for bid  
II Advertise notice to bidders  
III Notice to proceed  
IV Bid package complete  
V Bid period and receipt of proposals  
A. I, II, V, III and IV  
B. I, II, III, V and IV  
C. IV, I, II, V and III  
D. III, II, I, V and IV
  
3. \_\_\_\_\_ is responsible to third parties, main contractor, clerk of work and design team.  
A. Project Manager  
B. Site Manager  
C. Construction Manager  
D. Contract Manager
  
4. Which of the following are the key areas of concern to be addressed in order to enhance the level of productivity and quality of Malaysian construction industry?  
I Inefficient and ineffective construction-related methods, practices and procedures  
II Inability to attract and develop local workforce for the industry  
III Difficulty in securing timely and adequate financing at various stage of construction  
IV Difficulty in repatriating (bring back) profits or dividends from foreign projects  
V Inability of construction companies to provide total integrated solutions (e.g. construction service that include financing package and equipment)  
A. I, II and III  
B. I, II, III and IV  
C. I, II, III and V  
D. All the above





10. Listed below are the typical building components that suitable for reuse, **EXCEPT**

- A. Plumbing fixtures
- B. Brick
- C. Concrete wall
- D. Doors

11. \_\_\_\_\_ such as dusts and fibres are likely to be produced during construction and renovation activities.

- A. Recyclable material
- B. Toxic material
- C. Particulate material
- D. Micro components

12. The following table shows the management function and the relevant actions and tools to be utilised by managers.

Management Function	Action	Applicable Tools
Organising - Coordinate	<b>i</b>	Work Breakdown Structure (WBS)
Directing - Controlling	Analyze problems early - measure project performance	<b>ii</b>

Complete the table with appropriate action (i) and applicable tools (ii).

	<b>i</b>	<b>ii</b>
A.	Explain clearly to team members what is expected of them - show interest and enthusiasm	WBS, Bar Chart
B.	Systematise all works to be done - synchronization of responsibilities and command	Bar Chart, S-Curve, CPM
C.	Synchronization of responsibilities and command - establish clear and well-defined milestones	WBS, S-Curve
D.	Be available to the project staff - avoid reprogramming or re-planning the project	WBS, CPM

13. Based on the following organisational criteria, determine the most suitable organisational structure for the developer.

- Currently have a single development of housing scheme at Batu Pahat
- Comprising of 10 staffs
- Using conventional method of construction
- Headquarter in Batu Pahat

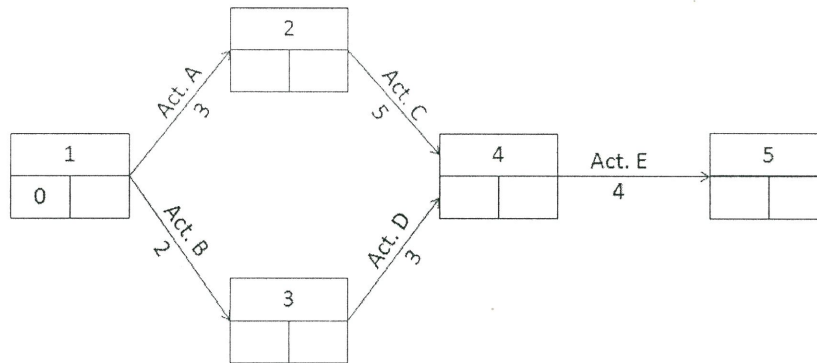
- A. Matrix structure
- B. Traditional structure
- C. Functional structure
- D. Pure-project structure



14. You have bought a new house and intended to renovate the kitchen. You have a tight budget and schedule, and willing to pay lump-sum for the renovation. Which project delivery method will be the most suitable for your house renovation?
- A. Traditional  
 B. Design-Build  
 C. Construction Management  
 D. Owner-builder arrangement

15. Which of the following is a method used for project planning?
- A. Arrow Diagram Method  
 B. Precedence Diagram Method  
 C. Work Breakdown Structure  
 D. Linear Scheduling Method

16. The following figure shows an arrow diagram for a project. What is the critical path for this project, and what is the duration of the critical path?



- A. 1-2-4-5, 12 days  
 B. 1-3-4-5, 12 days  
 C. 1-2-4-5, 9 days  
 D. 1-3-4-5, 9 days
17. Based on the figure in previous question (Q1(16)), how many days on activity D can be late in starting without effecting the project completion date?
- A. One day  
 B. Two days  
 C. Three days  
 D. Six days
18. Which of the following statements on the significance of cost control in construction project is **NOT TRUE**?
- A. Early detection of actual cost overruns in construction activities is vital to management.  
 B. Provides opportunity to initiate remedial action and increase chance of eliminating or minimize the impacts.  
 C. Cost overruns may increase project costs and diminish profit.  
 D. Cost overrun may cause quality of project decrease.



**Table Q2**

<b>Activity</b>	<b>Duration (week)</b>	<b>Work progress percentage (%)</b>
Activity A	2	10
Activity B	4	15
Activity C	4	25
Activity D	4	10
Activity E	3	12
Activity F	4	16
Activity G	2	12
		100

(12 marks)

**Q3** Table **Q3** shows the duration, predecessor activity, lag and resource distribution for each activity in a construction project. A network diagram for the project is shown in Figure **Q3**.

- (a) Calculate the Early Start (ES), Early Finish (EF), Late Start (LS) and Late Finish (LF) for each activity to complete the network diagram in Figure **Q3**.
- (b) Determine the total Float (TF) and show Critical Path Activity (s) on the network diagram in Figure **Q3**.
- (c) Based on the data obtained from **Q3 (a)** and **Q3 (b)**, and the total number of workers available is 25, do the resource leveling for this project. Your answer must consist of bar chart and histogram, **before** and **after** the resource leveling exercise.

(10 marks)



**Table Q3**

Activity	Duration (week)	Predecessor	Lag	Number of worker/week
A	2	-	-	25
B	6	A	-	10
C	10	A	-	15
D	4	A	4	20
E	7	B	-	10
F	5	B	3	10
		C	-	
G	3	C,D	-	5
H	5	E,F	-	5
I	2	G	-	25
		H	1	

**SECTION C**

- Q4** (a) With the aid of a construction project lifecycle diagram, explain and differentiate roles of project manager, construction manager and site manager. (10 marks)
- (b) Figure **Q4** shows a comparison of time saved between two project delivery methods, i.e. Design-Build and Construction Management.
- (i) Explain why the time saved between the two project delivery methods is different. (6 marks)
- (ii) Explain how the use of information and communication technology (ICT) can help to increase the amount of time saved for a project applying Construction Management project delivery method. (4 marks)



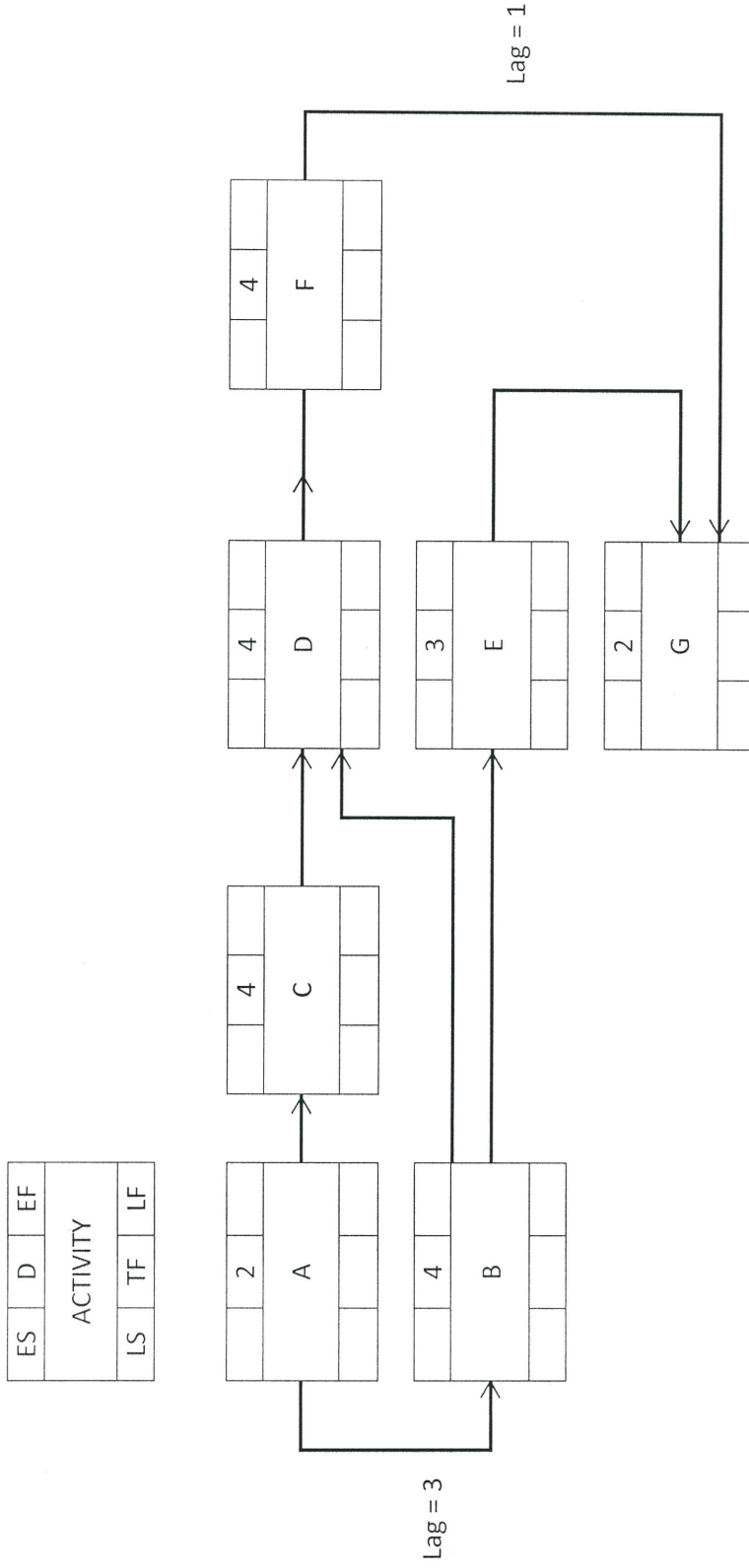
- Q5** (a) As a consultant who is responsible to assist your client in procurement phase suggest **FIVE** (5) possible procurement strategies in order to make the construction project a sustainable one.  
(10 marks)
- (b) Discuss how the adoption of 'value management' can contribute to materialise a sustainable construction project.  
(10 marks)

**- END OF QUESTION -**

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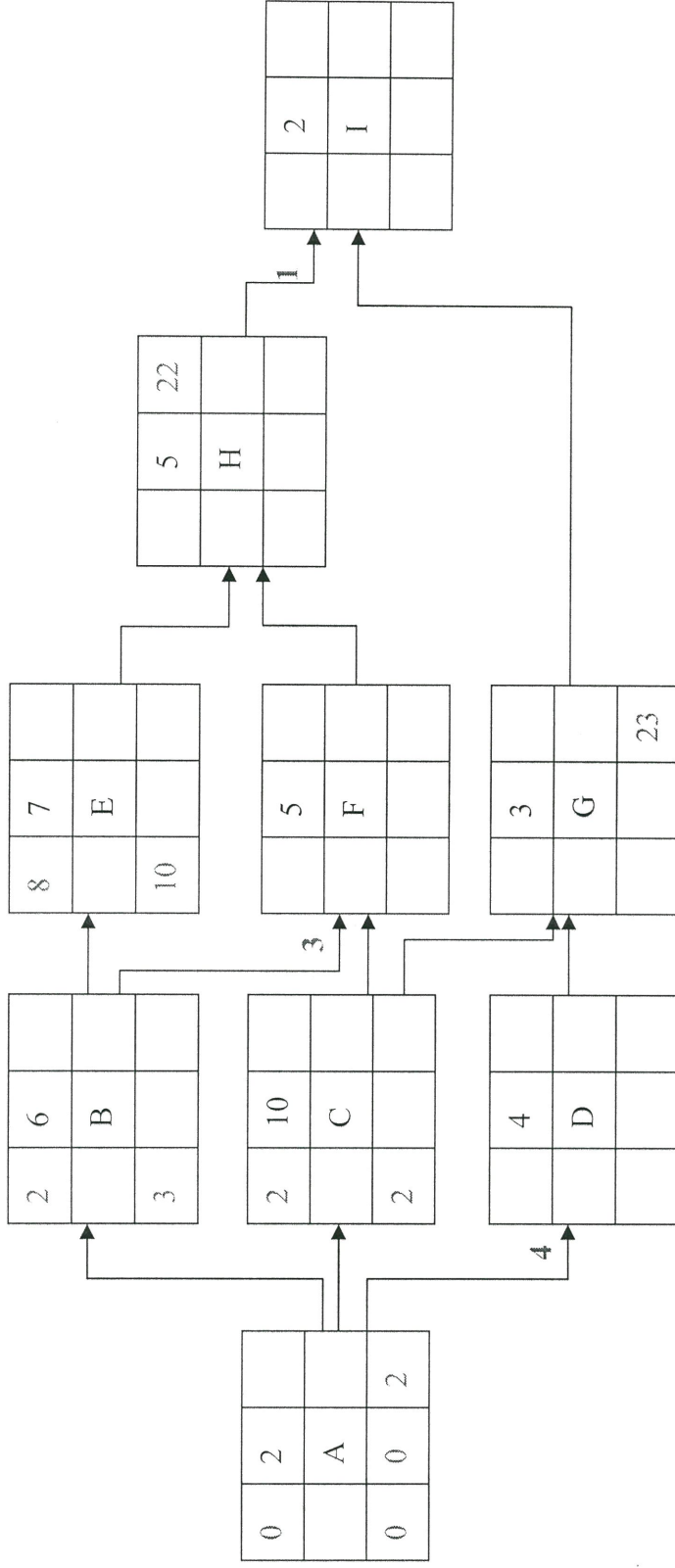


**FIGURE Q2**

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**FIGURE Q3**

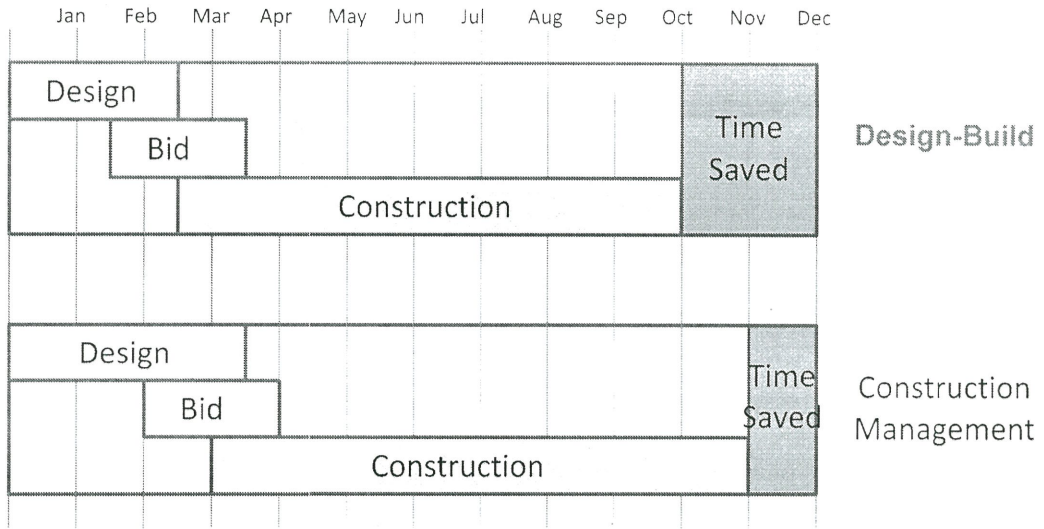
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**FIGURE Q4**

