THE OPEN UNIVERSITY OF SRI LANKA Diploma in Technology (Civil) - Level 4 CED 2204 - CONSTRUCTION MANAGEMENT EDIAL EVANDIATION 2005

FINAL EXAMINATION - 2005 Time Allowed: Three hours



Index Number:

Date: 2006 - 04 - 20(Friday)

Time: 0930 -1230 hrs.

The paper consists of two parts namely Part A and Part B. The answers to Part A should be provided on this paper and handed back together with the answer script for Part B. You may assume reasonable values for any factors not provided

Part A

All 12 questions in Part A are compulsory and each question carries 2 marks. The students are expected to spend approximately 45 minutes on this part. Provide your answers on the space provided.

1. List down the six main steps of preparing a bar chart.

2. Describe the two types of bars used in bar charts.

3. List the techniques used to stop bleeding of a casualty.

- 4. Name the methods available for estimating the direct cost of BOQ items.
- 5. List six different lifting equipment used in the construction industry.



6.	For each of the following construction equipment give an example of a construction activity for which the equipment could be used. i) Dredger
	ii) Crawler crane
	iii) Wheel loaders
7.	List down four factors that have to be considered when determining the output of shovels and draglines.
8.	Briefly explain what is understood by 'time study'.
9.	What do you understand by 'Economic Order Quantity'?
10.	Distinguish between preventive maintenance and corrective maintenance of construction equipment.
11.	Explain what is meant by 'resource smoothening' in relation to planning of a construction project.
12.	Resource scheduling is essential when we have limited resources in construction projects. Briefly explain how bar charts could be used for resource scheduling.

Part B

This part comprises six (06) questions. Answer any four (04) questions. Each question carries 19 marks. The students are expected to spend approximately 2 hrs and 15 minutes on this part.

Q1.

The Ministry of Education has approved a school building complex comprising individual building blocks and allied services, to an outstation school with a view to bring it up to the status of a 'National School'.

(a) Explain using examples the 'levels of planning' related to a construction project of similar type as mentioned above.

(Marks 07)

(b) Assuming you have been appointed as the Project Manager, prepare a list of activities associated with the given project under macro level planning.

(Marks 06)

(c) Explain in relation to the above example how micro level programming can be carried out.

(Marks 06)

Q2

(a) Explain what you understand by progress control of construction projects.

(Marks 06)

(b) Discuss the factors which determine the frequency with which progress is measured and evaluated.

(Marks 07)

(c) Explain how you can use bar charts in progress control

(Marks 06)

Q3.

- (a) Briefly outline the main functions of the following machines
 - (i) Grader
 - (ii)Dragline
 - (iii)Hoe

(Marks 06)

- (b) Describe 'cycle time' in relation to a truck engaged in an earthwork operation associated with the construction of an earth fill dam, identifying its elements.

 (Marks 07)
- (c) Discuss the methods available to increase productivity of earthwork operations carried out using machinery.

(Marks 06)



(a) Explain how 'Inventory Control' is carried out by a firm engaged in hiring of construction plant. Also discuss the advantages of adopting 'Inventory Control" in relation to this business.

(Marks 10)

(b) Accident preventive measures are vital in construction projects. Explain the different practices available for promoting occupational safety and health at construction sites.

(Marks 09)

Q5.

Write explanatory notes on the following;

- (a) Unit rate estimating
- (b) Site organization charts
- (c) First aid for head injuries

(Marks 19)
(All parts carry equal marks)

Q6.

A reactor and storage tank are interconnected by an insulated process line that needs periodic replacement. You are the maintenance and construction superintendent responsible for this project. The works engineer has requested your plan and schedule for a review with the operating supervisor. The precedents and crew requirement for each activity have been determined from a familiarity with similar projects.

Symbol	Activity description	Time	Precedents
		(Hrs)Days	
A	Develop required material list	8	_
В	Procure pipe	200	A
C	Erect pipe	12	_
D	Remove scaffold	4	I,M
E	Deactivate line	8	_
F	Prefabricate sections	40	В
G	Place new pipes	32	F, L
I	Fit up pipe and valves	8	G, K
J	Procure valves	225	A
K	Place valves	8	J, L
L	Remove old pipe and valves	35	C, E
M	Insulate	24	G, K
N	Pressure test	6	I
0	Clean-up and start-up	4	D, N

- (a) Draw an activity on arrow network diagram and mark the critical path. (Marks 10)
- (b) Find out the total float, free float and independent float for activity C and G. (Marks 04)
- (c) Briefly explain why different types of dummies are used in activity on arrow networks. Illustrate your answer with diagrams.

 (Marks 05)