



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.





#### Q4

- (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 (Hrs)Days	Precedents
A	Develop required material list	8	-
B	Procure pipe	200	A
C	Erect pipe	12	-
D	Remove scaffold	4	I, M
E	Deactivate line	8	-
F	Prefabricate sections	40	B
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
O	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)

