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**ET-581(F)**

01270

# B.Tech. Civil (Construction Management) / B.Tech. Civil (Water Resources Engineering)

## Term-End Examination

## June, 2012

## ET-581(F) : MECHANICAL EQUIPMENT IN CONSTRUCTION

*Time : 3 Hours* *Maximum Marks : 70*

***Note :*** *(i) Attempt **any seven** questions*

*(ii) All questions carry **equal** marks*

*(iii) Use of calculator is allowed*

1. (a) Briefly explain the working of an earth moving equipment. 5

   (b) What are various factors which are considered in the selection of equipment ? 5

2. (a) What is dredging ? Enlist any two equipment for the purpose. 5

   (b) Explain some practical ways of increasing the production rate of scrapers. 5

3. (a) What are the differences between a whirler crane and a tower crane ? 5

(b) Determine the lifting capacity of a crawler crane, given the following data. 5

Total weight of crane without boom (w) = 25 t

Total weight of boom and supporting tackle, B = 4 t

Radius of lifting = 8 m

Fulcrum distance = 1.8 m

Weight of load = 1 t

Distance of centre of gravity of machine from centre line of rotation = 1.2 m

Distance of boom hinge from centre line of rotation = 1 m

4. (a) Explain how dumpers are different from trucks. 5

(b) Explain the working of a clamshell bucket. 5

5. (a) Explain how can the output of vibratory rollers be estimated. 5

(b) Briefly discuss conditions where a crawler based equipment is best suited. 5

6. (a) Describe various types of cable ways. 5

(b) What is Post-cooling of Concrete ? How is it achieved ? 5

7. (a) Briefly describe the purpose of using Concrete Vibrators. 5

(b) How do you classify Concrete Vibrators ? 5

8. (a) Write any two differences between a straddler type and a truck mounted drilling jumbo. 5

(b) Explain various factors that affect a drilling pattern. 5

9. (a) Explain any two control gates for barrages and canal intakes. 5

(b) Explain the functioning of any one valve with the help of a neat sketch. 5

10. Write short notes on *any five* of the following : **5x2=10**

(a) Cycle time of a scraper

(b) Clam shells

(c) Fork lift

(d) Space requirements of escalators

(e) Kneading action in rolling

(f) Mass Concrete

(g) Needle vibrator

(h) Use of rippers.