

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

00102

Term-End Examination

December, 2016

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

Time : 3 hours

Maximum Marks : 70

Note : Attempt any seven questions. All questions carry equal marks. Figures in the margin indicate marks.

1. (a) What do you mean by swell and shrinkage of soil ? Write the equations for swell and shrinkage factors of soil. 5
- (b) What are the capacity ratings of excavating and hauling equipment ? 3
- (c) Why is the unit weight of soil important ? 2
2. (a) How are job and management factors used to determine the expected output of an equipment ? 5
- (b) Explain the following : 5
 - (i) Drawbar pull
 - (ii) Rim pull

3. (a) List the steps involved in determining the number of a particular type of equipment used in construction job. 5
- (b) Define depreciation. Explain the different methods used to determine the depreciation rates for an equipment. 5
4. (a) What is a power shovel ? Explain its operations. 5
- (b) What is a motor grader ? Explain its operations. 5
5. (a) Differentiate between crawler based and wheel based equipment. List their relative merits and demerits. 5
- (b) What is front-end loader ? Explain the different types of front-end loaders. 5
6. (a) Write a short note on each of the following : $2 \times 3 = 6$
 - (i) Fork Lift Trucks
 - (ii) Elevators
- (b) Explain the factors affecting selection of trucks. 4
7. (a) Explain the operations of tamping and sheep's foot rollers. 5
- (b) What is pneumatic-tyred roller ? How are pneumatic-tyred rollers used in earth compaction ? 5

8. (a) Explain the method of determining the output of compactors. 5
- (b) What is a concrete mixer ? Explain the drum and pan types of concrete mixers. 5
9. (a) What is a cableway ? Explain the components of a cableway. Support your answer with suitable diagrams. 5
- (b) Explain the different types of concrete buckets used in construction. 5
10. (a) What is needle or internal vibrator ? How does it compact concrete ? 5
- (b) List the different types of control gates. Explain the slide gate provided in conduits. 5
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