

**DIPLOMA IN CIVIL ENGINEERING DCLE(G)  
DCLEVI**

**Term-End Examination**

**June, 2014**

00970

**BCEE-052 : CONSTRUCTION EQUIPMENT**

*Time : 2 hours*

*Maximum Marks : 70*

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**Note :** Attempt any *seven* questions. **All** questions carry equal marks. Use of calculator is permitted. Assume any missing data suitably.

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1. List down the factors which affect the selection of a construction equipment. 10
  
2. Differentiate clearly between any *two* of the following : 5+5
  - (i) Standard equipment and Special equipment
  - (ii) Crawler based equipment and Wheel based equipment
  - (iii) Drawbar pull and Rimpull
  
3. (a) Justify the statement that "a bulldozer is a versatile construction equipment".  
  
(b) Define the output of a bulldozer and enlist the factors which affect it. 5+5

4. What precautions will you take while handling explosives to be used for blasting operations ? 10
5. Discuss different types of equipment used for concreting operation. 10
6. What are different types of cranes ? Explain briefly. 10
7. A construction machine costs ₹ 24,000. It has an expected life of 5 years and salvage value of ₹4,000. It is expected to work 2000 hours in a year. Compute the yearly depreciation for the machine using the straight-line method. 10
8. On an embankment dam, compacting rollers are used to compact the clay layer. Determine the time of rolling in minutes, if the sheep's foot roller travels at 4.5 kmph. Quantity of material compacted is  $81 \text{ m}^3$ , length of drum is 2.4 m, number of drums is one, fraction of overlap is  $1/8$ , layer thickness is 0.4 m, and the number of passes given are 5. 10
9. Determine the output of a bulldozer for the following situations : 10
- (a) Material handled sandy loam top soil having swell = 25%
  - (b) Haul distance = 30 m
  - (c) Rated mould board capacity =  $3 \text{ m}^3$  loose volume
  - (d) Actual operating time per hour = 45 minutes.
  - (e) Forward speed = 2.4 km/hr.
  - (f) Reverse speed = 6.0 km/hr
- Assume Gear shifting time = 0.30 minutes.

10. Write short notes on any *two* of the following : 5+5

- (a) Clamshell
  - (b) Hoe
  - (c) Scraper
  - (d) Trenching machines
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