

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

**Term-End Examination**

**00595**

**December, 2014**

**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.*

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1. What cost components should be considered in deciding the cost of owning and operating an equipment ? Give steps of the procedure to get the cost of owning and operating. 10
2. How is the size of a power-shovel selected in a project ? Define the output of a power-shovel and list down the factors which affect the output. 10
3. What are the advantages and disadvantages of a dragline over a power-shovel ? Describe the basic parts of a dragline by a line sketch. 10

4. Differentiate clearly between any *two* of the following : 5+5
- (i) Crawler-tractor scraper and Wheel-tractor scraper
  - (ii) Cranes and Elevators
  - (iii) Belt conveyors and Escalators
5. What are the advantages and disadvantages of a belt conveyor system ? Show its basic parts and discuss their functions. 10
6. Explain the precautions to be taken in a blasting operation. Draw sketches for various arrangements of blasting patterns. 10
7. What safety measures will you adopt in the following situations (Answer any *two*) : 5+5
- (a) Storage and handling of building materials
  - (b) Construction of elements of a building
  - (c) Demolition of a building in a built-up area
8. On an embankment dam compacting rollers are used to compact the clay layer. Determine the quantity of material compacted if the sheep's foot roller travels at 6.0 kmph, time of rolling is 50 min, length of drum is 3.0 m, number of drums is one, fraction of overlap is  $\frac{1}{6}$ , layer thickness is 0.5 m, and the number of passes given are 10. 10

9. Estimate the number of dump trucks required for transportation of  $1125 \text{ m}^3$  of materials per day for an average lead of 5 km with the following data :

Capacity of one dump truck =  $15 \text{ m}^3$ .

Speed during empty haul = 25 km/hr,

and loaded haul = 20 km/hr.

Loading time for one dump truck = 10 min.

Assume : other fixed time like gear shifting etc. = 3 min. For estimating purposes, actual working period is considered as 50 minutes per hour and 6 hours working period in a day.

10

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

- (a) Occupational Health and Safety
  - (b) Log books
  - (c) Preventive Maintenance
  - (d) Fork-lift trucks
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