BCEE-052

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Diploma in Civil Engineering

Term-End Examination

June, 2011

BCEE-052 : CONSTRUCTION EQUIPMENT

Time : 2 hours   *Maximum Marks : 70*

*Note :   Question number 1 is **compulsory**. Attempt any **four** questions out of the remaining from questions numbered 2 to 7. Use of calculator is permitted.*

1.   Fill in the blanks/ answer the followings :   **7x2=14**

 (a)   The rolling resistance is a factor that resists the movement of a vehicle on a _____ surface.

 (b)   Depreciable value is the difference between the original cost and the _____ value.

 (c)   _____ electric detonators can with stand a water pressure upto 41 kgf/ sq cm.

 (d)   _____ crane is a combination of derrick and mobile crane.

 (e)   For load - carrying portion of a belt the idlers are designed to provide the necessary _____.

 (f)   _____ is the distance over which fragments of rock fly after a blast shatters the rock.

(g) _____ is the time that a machine is not working because it is undergoing repairs.

2. (a) What are the changes in volume and density of earth, when it is excavated, filled and compacted ?   7

(b) How would you proceed to determine the number of a particular type equipment required for any construction job ?   7

3. (a) How do you select the type and size of a power shovel ?   7

(b) Explain different kinds of motor graders; and the factors affecting the output of motor graders.   2+5=7

4. (a) What are trenchers ? Describe the types of trenchers.   2+5=7

(b) Describe the relative merits of crawler based and wheel based equipment.   7

5. (a) List out the factors that affect the drilling pattern in surface works ? Explain any two of these factors.   2+5=7

(b) Describe the types of front - end loaders with standardised ratings.   7

6. (a) Enumerate the various tips for increasing 7
the production rate of wagons.

(b) A construction machine worth Rs. 18000/- 5
has an expected life of 5 years and a salvage
value of Rs. 3000. Compute the yearly
depreciation for the machine, using normal
declining balance method.

(c) Find out the output of a scraper with struck 2
capacity of 7.2 m³, and a haul distance (one
way) of 1.50 m.

7. Write short notes on *any four* of the following :

4x3½=14

(a) Cooling cement

(b) Cable ways

(c) Tree dozers

(d) Obsolescence cost

(e) Hazard prevention and control