

01075

Diploma in Civil Engineering

Term-End Examination

June, 2010

BCEE-052 : CONSTRUCTION EQUIPMENT

Time : 2 hours

Maximum Marks : 70

Note : Question number 1 is compulsory. Attempt any four more questions from questions number 2 to 7.

1. Select the correct alternative from the given four alternatives for each of the following questions : **7x2=14**
 - (a) The volume of earth, measured in - Situ, namely, in a borrow pit, canal, trench or cut prior to loosening, is known as :
 - (i) Loose measure
 - (ii) Bank measure
 - (iii) Compacted volume
 - (iv) Fill volume
 - (b) The easiest method to calculate depreciation is said to be the :
 - (i) Declining balance method
 - (ii) Sum of the years' digits method
 - (iii) Straight line method
 - (iv) Sinking fund method

- (c) A motor grader is used for :
 - (i) excavation
 - (ii) levelling or finishing earth work
 - (iii) trenching
 - (iv) moving equipment
- (d) On small tunnels where rail mounted equipment are used, which of the following may be used ?
 - (i) Main line type jumbo
 - (ii) Straddle type jumbo
 - (iii) Truck mounted jumbo
 - (iv) none of the above
- (e) A stiff leg derrick is :
 - (i) an excavating equipment
 - (ii) a levelling equipment
 - (iii) a crane
 - (iv) a trench making equipment
- (f) Idlers provide the supports in :
 - (i) a crane
 - (ii) a truck
 - (iii) a belt conveyer
 - (iv) none of the above
- (g) Which of the following may not be used for pre-cooling concrete ingredients ?
 - (i) Ice
 - (ii) Liquid Nitrogen
 - (iii) Chilled water
 - (iv) Liquid ammonia

2. (a) Enlist and briefly explain any seven general considerations for the choice of an equipment. 7
- (b) A machine has an initial cost of Rs. 50,000. It has an expected life of 10 years and has a salvage value of Rs. 5000. Compute yearly depreciation for the machine using straight - line method. 7
3. (a) What are the considerations for selecting the type and size of a power shovel ? Discuss briefly. 7
- (b) Discuss the conditions where a wheel based equipment is best suited. 7
4. (a) Briefly explain various blasting patterns used in drilling and blasting operations. 7
- (b) Enlist any three different types of rollers. Discuss any one of them. 7
5. (a) Compacting rollers are used to compact clay layer at an embankment dam site. Determine the quantity of material compacted if the sheep's foot roller travels at 5 km/hour, time of rolling, length of drum, number of drums, fraction of overlap, layer thickness and number of passes are 50min, 2.0m, 2, $\frac{1}{8}$, 0.35m and 4, respectively. 7
- (b) Explain various stages of operation of a Front - end loader. 7

6. (a) Give a classification of cranes. Briefly explain different types. 7
- (b) What are different types of arrangement of escalators? Explain with the help of suitable sketches. 7
7. Write short notes on *any four* of the following : $4 \times 3\frac{1}{2} = 14$
- (a) Cable ways
- (b) Mass concrete
- (c) Conveyor belts
- (d) Jack hammer
- (e) Swell and shrinkage
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