

Diploma in Civil Engineering

Term-End Examination

December, 2011

01172

BCEE-052 : CONSTRUCTION EQUIPMENT

Time : 2 hours

Maximum Marks : 70

Note : Question No.1 is compulsory. Attempt **any four** questions out of the remaining questions numbered 2 to 7. Use of scientific calculator in **permitted**.

1. Fill in the blanks/answer the followings. **7x2=14**
- (a) The increase in volume of earth due to loosening is called _____.
 - (b) _____ is due to the pull of gravity when a vehicle moves up a gradient.
 - (c) _____ draglines operate on soft surfaces.
 - (d) _____ is breaking of larger pieces of rocks into smaller pieces for convinience of handling.
 - (e) Hammer head crane is also known as _____ crane.
 - (f) The _____ inspection is a technical inspection.
 - (g) For depositing concrete under water _____ bucket is used.

2. (a) Define the components of cycle time and how is the efficiency factor of a machine defined ? 3+4=7
 - (b) Explain the operations of a drag line. What are the advantages and disadvantages of draglines ? 4+3=7

3. (a) Compare the performance of crawler-mounted and wheel mounted bulldozers. List out the advantages of the wheel mounted bulldozers. 4+3=7
 - (b) Explain any two types of drilling jumbos. $3\frac{1}{2}+3\frac{1}{2}=7$

4. (a) Explain the two capacity ratings of excavating and hauling equipment. 4
 - (b) Find out the swell factor and shrinkage factor of soil with percent swell of 20% and percent shrinkage of 20%. 4
 - (c) What are the main aims of carrying out inspections ? Name the major types of inspections. 4+2=6

5. (a) A construction equipment costs Rs.24000 and has an expected life of 5 years and salvage a value of Rs.6000. It is expected to work 2000 hours in a year. Compute the book value of the machine each year using double - declining balance and sum of the year's digit methods. 3+4=7
 - (b) List out the different types of cranes used in a construction project, explain any two types of cranes. 3+2+2=7

6. (a) What are delay detonators ? Explain the advantages of electric detonators over other types of detonators. $5+2=7$
- (b) What are the various methods of pre - cooling concrete ingredients, explain any one of such methods ? $2+5=7$
7. Write short notes on *any four* of the followings. $4 \times 3\frac{1}{2} = 14$
- (a) Replacement of equipment
- (b) Belt conveyors
- (c) Elevators
- (d) Vibrating compactors
- (e) Suction dredge
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