

**DIPLOMA IN CIVIL ENGINEERING DCLE(G) /  
ADVANCED LEVEL CERTIFICATE COURSE IN  
CIVIL ENGINEERING (DCLEVI / ACCLEVI)**

**Term-End Examination**

**00725 December, 2014**

**BET-015 : ENGINEERING MATERIALS**

*Time : 2 hours*

*Maximum Marks : 70*

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**Note :** *Question number 1 is compulsory. Attempt any four more questions out of questions no. 2 to 8. All questions carry equal marks.*

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1. Choose the correct alternatives :  $7 \times 2 = 14$
- (a) Geologically marble is known as
- (i) metamorphic rock
  - (ii) sedimentary rock
  - (iii) igneous rock
  - (iv) stratified rock
- (b) Soluble salts present in the brick cause
- (i) burning
  - (ii) efflorescence
  - (iii) drying
  - (iv) sedimentation

- (c) The approximate percentage of CaO used for the manufacture of cement is
- (i) 40 to 47%
  - (ii) 50 to 57%
  - (iii) 60 to 67%
  - (iv) 70 to 77%
- (d) The weight and volume of one bag of cement is
- (i) 35 kg and 50 litres
  - (ii) 35 kg and 35 litres
  - (iii) 50 kg and 50 litres
  - (iv) 50 kg and 35 litres
- (e) Timber for engineering purposes is mostly derived from
- (i) deciduous trees
  - (ii) conifers
  - (iii) endogenous trees
  - (iv) None of the above
- (f) The constituents of the varnish are
- (i) resins
  - (ii) driers
  - (iii) solvents
  - (iv) All the above

(g) The glass manufactured by pouring the molten glass over the liquid (molten) tin is known as

- (i) wire glass
- (ii) patented glass
- (iii) float glass
- (iv) rolled glass

2. (a) Describe the main climatic agencies bringing about deterioration of stones. 7
- (b) Discuss the various harmful ingredients of brick earth used for making bricks. 7
3. (a) Explain the various tests to judge the suitability of cement for minor works. 7
- (b) Describe the classification of lime as per IS : 1973. 7
4. (a) What do you mean by bulking of sand ? Explain the importance of its determination. 7
- (b) Explain the various types of concrete with the help of a systematic diagram. 7
5. (a) Describe the characteristics of a hardwood. 7
- (b) Explain the various causes or situations which favour the early decay of timber. 7

6. (a) Write down the various ingredients of an oil paint. Describe the functions of each ingredient. 7
- (b) Explain the various ways in which stone is used as a facing material. 7
7. Write short notes on the following :  $4 \times 3 \frac{1}{2} = 14$
- (a) Natural bed of stone
- (b) Compaction of concrete
- (c) Hydration of cement
- (d) Measurement of timber
8. Differentiate between the following :  $4 \times 3 \frac{1}{2} = 14$
- (a) Stone and Brick
- (b) Destructive and Non-destructive testing of hardened concrete
- (c) Hardwood and Softwood
- (d) Ordinary cement concrete and Polymer cement concrete
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