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University Examinations 2013/2014

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR DIPLOMA IN CIVIL
ENGINEERING

ECV 0223: CIVIL ENGINEERING MATERIALS

DATE: APRIL 2014

TIME: 1 ½ HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE – (30 MARKS)

- (a) Differentiate softwood and hardwood giving an example of each. (4 Marks)
- (b) State and briefly describe two natural defects of timbers. (6 Marks)
- (c) Giving examples, describe the main classification of civil engineering materials. (5 Marks)
- (d) State and describe five main components of paint. (10 Marks)
- (e) State and explain two types of plastics giving an example of each. (5 Marks)

QUESTION TWO – (15 MARKS)

- (a) State effects of carbon in steel. (6 Marks)
- (b) Outline properties of aluminium that makes it popular in engineering and give two applications of it. (9 Marks)

QUESTION THREE – (15 MARKS)

- (a) Define the following terminologies
 - (i) Carburizing
 - (ii) Tempering
 - (iii) Hardening (6 Marks)
- (b) Differentiate between annealing and normalizing. (4 Marks)
- (c) State two alloys of copper and their uses. (5 Marks)

QUESTION FOUR – (15 MARKS)

- (a) State and explain four properties exhibited by plastics. (8 Marks)
- (b) Give three uses of zinc in building engineering. (3 Marks)
- (c) List four properties of bricks which will be of importance to satisfy their functional requirements. (4 Marks)

QUESTION FIVE – (15 MARKS)

- (a) State applications giving explanations of the following special points:
 - (i) Light reflecting white paint
 - (ii) Acrylated rubber paints
 - (iii) Heat resisting paint
 - (iv) Flame retardant paints
 - (v) Fungicide paints
 - (vi) Anti-microbial coatings (12 Marks)
- (b) State and describe two artificial defects of timber. (3 Marks)