THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

(A Centre of Excellence)

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

DIPLOMA IN ARCHITECTURE (DA 10B)

EBC 2307: CAD I

SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: OCTOBER 2012
TIME: 2 HOURS

Instructions to Candidates:
You should have the following for this examination

- *Answer Booklet*
- *Laptop/Desktop Computer*

This paper consists of **TWO sections**. Section **I** and **II**. Section **I** has 30 marks. Section **II** has **40 marks**.
Attempt all questions in section I and **TWO** questions in section **II**
Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages
Create a folder on the desktop with your full names. Save your answer in AutoCAD using your student Number.

Question One (20 Marks)

a) Define the terms below as used in AutoCAD.
- **i)** Absolute co-ordinates (1 mark)
- **ii)** Relative co-ordinates (1 mark)
- **iii)** Zoom window (1 mark)
- **iv)** Tool bars (1 mark)
- **v)** Osnap (Briefly describe how to make Osnaps active assuming they are not turned on. (4 marks)
- **vi)** Snap State **FOUR** requirements to be observed while transporting concrete. **(4 marks)**

b) Outline the following modes of transporting concrete and each case state their limitations
- **i)** Wheelbarrows
- **ii)** Dumpers
- **iii)** Tipper trucks
- **iv)** Ready–mix concrete trucks
- **v)** Skips and buckets
- **vi)** Pumping **(12 marks)**

c) Distinguish between fresh and hardened concrete. **(4 marks)**

Question Two (20 Marks)

a) Outline the following concrete mixes stating the limitations in use.
- **i)** Nominal mixes
- **ii)** Prescribed mixes
- **iii)** Design mixes

(6 marks)

b) Determine the material requirement to produce 100cm3 of concrete mix 1:2:4 if concrete yields by 25%.
- Density of sand = 1600 kg/m^3
- Density of ballast = 1400 kg/m^3
- Density of cement = 1400 kg/m^3
- Water/cement ratio = 0.6 **(14 marks)**

Question Three (20 Marks)

a) Outline the mode of operation of the following types of concrete mixers.
- **i)** Tilting drum
- **ii)** Non-tilting drum
- **iii)** Peversing
- **iv)** Pan **(12 marks)**

b) Define the following:
- **i)** Mixing time of mixers
- **ii)** Mixing cycle of mixers
- **iii)** Output of mixers. **(8 marks)**

Question Four (20 marks)

a) State **THREE** purposes of formwork. **(6 marks)**

b) State **SIX** functional requirements of formwork. **(12 marks)**

c) State minimum striking periods of the following forms:
- **i)** Vertical formwork to columns, walls.
- **ii)** Props to slab soffits
- **iii)** Props to beam soffits **(2 marks)**

Question Five (20 marks)

a) Describe the method of carrying out the following concreting operations:
(i) Under-water concreting
(ii) Concreting in deep lifts
(ii) Concreting on sloping structures. **(15 marks)**

b) Outline the following surface finishes.
i) Board marked surfaces
ii) Terrazzo finishes
iii) Granolithic finishes (5 marks)

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