MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)
University Examinations 2015/2016

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

SECOND SEMESTER EXAMINATION FOR DIPLOMA IN CIVIL ENGINEERING

BCE CD 310 WORKSHOP TECHNOLOGY V

Date: 27/4/2016   **Time: 8:30 – 10:30 AM**

INSTRUCTIONS

> *This paper consists of FIVE questions*
>
> *Answer question one and other two questions in this paper*

QUESTION ONE (COMPULSORY)

(a)   State four measures that are considered in the use of hacksaw tool.   (4 marks)

(b)   Briefly explain five precautions considered in safety of machine tools.   (10 marks)

(c)   Describe three basic essentials required before a fire can start.   (6 marks)

(d)   Outline three fire fighting techniques.   (3 marks)

(e)   Name any three classes of fire risks citing examples in each case   (7 marks)

QUESTION TWO

(a)   Enumerate why it is necessary to give first aid to casualties   (3 marks)

(b)   Outline the scope of first aid   (8 marks)

(c)   Define the term pump   (2 marks)

(d)   Outline seven functions of a pump   (7 marks)

QUESTION THREE

(a)   Describe the primary process in centrifugal pumps   (5 marks)

(b)   List down four advantages and four disadvantages of centrifugal pumps   (8 marks)

(c)   By use of a neat labeled sketches, define a hydraulic ram and show how it operates   (7 marks)

QUESTION FOUR

(a)   List down five factors to be considered when installing a pump   (5 marks)

(b)   List down and briefly explain three important points to consider regarding pumps   (9 marks)

(c)   A double acting reciprocating pump with:

Piston diameter- 90 mm

Stroke length-170mm
Piston rod diameter- 25mm

Stroke (n) =200rev/min

(i)   Calculate the flow of water in 4 hours   (3 marks)

(ii)   Calculate the power if the total head is 40m. Efficiency=85%   (3 marks)

QUESTION FIVE

With the aid of neat sketches, explain how a four stroke cycle petrol engine operates   (20 marks)