TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING EMG 2202:

WORKSHOP PROCESSES & PRACTICE II

END OF SEMESTER EXAMINATION

SERIES:DECEMBER2016

TIME:2HOURS

DATE: Pick DateDECEMBER 2016

Instructions to Candidates

You should have the following for this examination
-Answer Booklet, examination pass and student ID
This paper consists of **FIVE** questions.
question ONE (Compulsory) and any other TWO questions.
Do not write on the question paper.

Question ONE

a) Explain briefly with a neat diagram the parts of a turret lathe (10 marks)
b) Make short notes on reaming giving different types of reaming (10 marks)
c) Explain the working principle of a shaper giving its main parts. (10 marks).

Question TWO

a) List five specifications of a centre lathe (5 marks)
b) List five difference between the turret lathe and capstan lathe (5 marks)
c) Choose the gears to fitted on the spindle and leadscrew of a lathe machine to generate a screw thread with a pitch of *0.6 mm* given that the leadscrew has a pitch of *4 mm*. (5 marks)
d) Calculate the time required to machine a workpiece *150 mm* long *70 mm* diameter to *130mm* long without changing the diameter. Given that the workpiece rotates at *400 rpm,* feed is *0.3 mm/rev* maximum allowable depth of cut is *2mm*. (5marks)

Question THREE

a) List five shaper work holding devices (5 marks)
b) List five operations performed by a shaper. (5 marks)
c) A workpiece surface *280 mm* long and *150 mm* wide is to be machined on a shaper with cutting-to-return ratio of *4:3*. Cutting speed, feed and clearance are *21 m/min, 2 mm/double stroke* and *30 mm* respectively. The available ram strokes on the shaper are: *28, 35, 60* and *90 stokes/min.* If the depth of cut is *3.5 mm*, determine the time required to machine the surface and the material removal rate. (10 marks)

Question FOUR

a) Briefly explain the different types of chips (10 marks)
b) Draw and briefly explain main parts of a single point cutting tool (10 marks)

Question FIVE

a) Briefly explain the difference between counter boring and counter sinking (10 marks)
b) Give the specifications of drilling machine. (10 marks).