

PROGRAM : NATIONAL DIPLOMA
ENGINEERING: MECHANICAL
ENGINEERING: INDUSTRIAL

SUBJECT : **MECHANICAL MANUFACTURING
ENGINEERING**

CODE : **IMV 1111**

DATE : WINTER EXAMINATION 2014
13th JUNE 2014

DURATION : 08:30 – 11:30

WEIGHT : 40 : 60

TOTAL MARKS : AVAILABLE = 150, FULL MARKS = 140

EXAMINER : MR SJP VAN PLETZEN

MODERATOR : MR F TEKWEME 2089

NUMBER OF PAGES : 3

INSTRUCTIONS :

- 1) ALL SKETCHES MUST BE DONE WITH DRAWING INSTRUMENTS. MARKS WILL BE DEDUCTED FOR UNTIDY WORK.
- 2) STUDENTS MUST SUPPLY THEIR OWN DRAWING EQUIPMENT.
- 3) QUESTIONS MAY BE ANSWERED IN ANY ORDER, BUT KEEP SUB SECTIONS IN ORDER [e.g. 1.1), 1.2), 1.3).....]
- 4) UNDERLINE AFTER COMPLETING A QUESTION.

QUESTION 1

- 1.1 Name eight unsafe acts by people that cause accidents in the work place (8)
- 1.2 Discuss general safety measures in the workplace regarding the following:
Sharp tools, missing buttons, loose cuffs, holes in pockets, long overalls,
light weight shoes and long hair. (7)
- [15]
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QUESTION 2

- 2.1 Explain the purpose and process of tempering. (6)
- 2.2 State five hardening faults in steel and give an effect of each. (10)
- 2.3 Explain the normalizing process of steel (10)
- [26]
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QUESTION 3

- 3.1 Give five safety measures regarding the use of screwdrivers. (5)
- 3.2 Explain the different types of "cuts" of files. (7)
- 3.3 Name five kinds of pliers. (5)
- 3.4 Name five factors that determine the nature of a particular grinding wheel. (5)
- [22]
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QUESTION 4

- 4.1 What is the difference between a right-hand and a left-hand thread? (2)
- 4.2 Make a labeled sketch showing screw thread terminology. (13)
- 4.3 Draw and label a neat two dimensional sketch of an external micrometer (12)

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- 4.4 Make neat sketches to indicate the following readings on a Vernier caliper:
- a) 17,50mm
 - b) 20,74mm
 - c) 17,18mm
- (9)
- [36]
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QUESTION 5

- 5.1 Name ten Occupational Health and Safety rules pertaining to drilling machines. (10)
- 5.2 Name five clamping faults that may occur. (5)
- 5.3 How are grinding wheels tested for cracks? (6)
- [21]
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QUESTION 6

- 6.1 Name ten safety measures pertaining to the operation of a milling machine. (10)
- 6.2 Name three types of milling machines. (3)
- 6.3 Name five uses of the milling machine. (5)
- [18]
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QUESTION 7

- 7.1 State three advantages and three disadvantages of using a driving plate (face plate) on a center lathe. (6)
- 7.2 State three advantages and three disadvantages of using the self centering three-jaw chuck on a center lathe. (6)
- [12]
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