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| Document no. | ADM-FO-002b |
| Revision no. | 001 |

TEST 1

SUBJECT: Fitting and Turning

LEVEL: 3

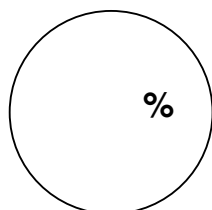
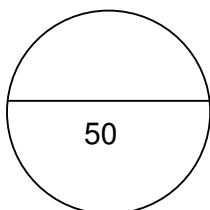
DATE: MARCH 2017

EXAMINER: N Breytenbach

NAME OF MODERATOR: E Shamu

| | | | |
|-----------------|--|-------|--|
| Student Surname | | Name | |
| ID. Number | | Group | |

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|----------------------------|-----------------------|
| Topic and outcomes covered | Topic 1- 2 |
| Duration | 1 Hour |
| Evidence Required | Answer Sheet |
| Instrument | Completed Test |



| Rating Scale | Remark | Rating |
|--------------|-------------------|----------|
| 5 | Outstanding | 80 - 100 |
| 4 | Highly competent | 70 - 79 |
| 3 | Competent | 50 - 69 |
| 2 | Not yet Competent | 40 - 49 |
| 1 | Not achieved | 0 - 39 |

SIGNATURES:

Student declaration: I declare that the evidence provided is my own work.

STUDENT: _____ DATE: _____

FEEDBACK: _____

Indicate which questions you found difficult (tick ✓)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | TOTAL |
|---|---|---|---|---|---|---|---|-------|
| | | | | | | | | 50 |
| | | | | | | | | |

LECTURER: _____ Date: _____

COMMENT: _____

Post moderation _____

College moderation: _____ Date _____

External moderation _____ Date _____

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INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
 2. Read ALL the questions carefully.
 3. Number the answers correctly according to the numbering system used in this question paper.
 4. Questions may be answered in any order, but subsections of questions must be kept together.
 5. This test paper consist of 4 pages
 6. ALL the formulae used must be written down.
 7. Questions must be answered in BLUE or BLACK ink.
 8. Write neatly and legibly.
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BEARINGS

QUESTION 1: (30 marks)

- 1.1 Name two types of plain bearings and their applications (4)
- 1.2 Explain the following properties of metals.
- a) Embedability (1)
 - b) Conformability (1)
 - c) Thermal Conductivity (1)
- 1.3 Name 5 materials that can be used to manufacture plain bearings. (5)
- 1.4 State three disadvantages in the use of non-friction bearings. (3)
- 1.5 Choose the correct description from column B that matches a statement in column A
Write only the letter (a to m) next to the question number (1.5.1 to 1.5.10) in your answer book.

| COLOUMN A | | COLUMN B | |
|-----------|--|----------|------------------|
| 1.5.1 | A bearing that runs on cylindrical rollers between the bearing rings | A | Bearing |
| 1.5.2 | Two parts that fit against each other | B | Journal |
| 1.5.3 | A bearing that consists of two halves | C | Solid Bearing |
| 1.5.4 | A bearing which support a vertical shaft end | D | Split Bearing |
| 1.5.5 | A metal with a low friction resistance | E | Bearing Bush |
| 1.5.6 | A bearing with ball shaped rollers | F | Bearing Metal |
| 1.5.7 | A bearing resisting Axial pressure | G | Alloy |
| 1.5.8 | This bearing consist of a solid piece of metal | H | Butt |
| 1.5.9 | The part of the shaft that fits into the bearing bush | I | Thrust Bearing |
| 1.5.10 | The bush in which the journal rotates | J | Footstep Bearing |
| | | K | Ball Bearing |
| | | L | Roller Bearing |

(10)

- 1.6 Choose the correct load combination from column B that fits the bearings in column A
Write only the letter (a to e) next to the question number (1.6.1 to 1.6.5) in your answer book.

| COLOUMN A | | COLUMN B | |
|-----------|------------------------------------|----------|----------------------------------|
| 1.6.1 | Single row radial ball bearing | A | High radial and low axial loads |
| 1.6.2 | Tapered roller bearing | B | Only axial loads |
| 1.6.3 | Single row angular contact bearing | C | Only radial loads |
| 1.6.4 | Single thrust ball bearing | D | High radial and high axial loads |
| 1.6.5 | Split bearings | E | Low radial and high axial loads |

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COUPLINGS

QUESTION 2: (20 marks)

- 2.1 Name the three basic methods for coupling alignment. (3)
- 2.2 Name four faults that can result from a faulty alignment of a coupling. (4)
- 2.3 Name the three main groups of couplings and give 1 example of each. (6)
- 2.4 explain the difference between a clearance fit and an interference fit in installing a coupling. (3)
- 2.5 Indicate if the following statements are true or false. Write the question numbers (2.5.1 to 2.5.4) in your answer book and then answer true or false next to it.
- 2.5.1 A coupling does not allow disengagement between the driver and the driven shaft. (1)
- 2.5.2 Misalignment is a condition where the center lines of the coupled shafts do not coincide. (1)
- 2.5.3 Shaft run out can be measured with a vernier. (1)
- 2.5.4 A coupling change the direction of motion that is transmitted from the source (ex. Electric motor) (1)

TOTAL: 50