**BUNAMFAN CLUSTER EXAMINATION – 2022**

**Kenya Certificate of Secondary Education**

**447/2 – POWER MECHANICS – Paper 2 (PRACTICAL)**

**June 2022 - 2 ½ hours**

**Name**…………………………………**Adm No**……

**Class**…………… **Date**……………………………

**Instructions to candidates**

1. This paper consiste of 10 questions named stations.
2. Answer all questions.
3. All the questions have equal marks.
4. Do not spend more than 15 marks per station.
5. Once you leave a station, you will not be allowed back to the same station.
6. This paper consists of 8 printed pages. Ensure that all questions are present.

**STATION 1**

**INSTRUCTIONS**

Draw an assembled valve train system. (10mks)

**STATION 2**

**INSTRUCTIONS**

Using the tools, equipment and materials provided, make the handle as shown in the figure below.

 (10mks)



**STATION 3**

**INSTRUCTIONS**

Identify the items labeled A to E. State the material each is made of and one use of each part in a motor vehicle (10mks)

|  |  |  |
| --- | --- | --- |
| **ITEM** | **MATERIAL** | **USE** |
| A |  |  |
| B |  |  |
| C |  |  |
| D |  |  |
| E |  |  |

**STATION 4**

**INSTRUCTIONS**

Provided on the bench are hand tools used in mechanics. Study them and fill the table below appropriately. (10mks)

|  |  |  |
| --- | --- | --- |
| **TOOL** | **NAME** | **USE** |
| **A** |  |  |
| **B** |  |  |
| **C** |  |  |
| **D** |  |  |
| **E** |  |  |
| **F** |  |  |
| **G** |  |  |
| **H** |  |  |
| **I** |  |  |
| **J** |  |  |

**STATION 5**

**INSTRUCTIONS**

Using tols and gear oil pump provided, carrry out the following tasks;

1. Dismantle the pump
2. Perform neccessary service checks
3. Assemble the pump (10mks)

**Let the examiner check your work**

**STATION 6**

**INSTRUCTIONS**

Identify the motor vehicle parts labelled J, K, L, M and N. Name each part, state the vehicle system it belongs to and state its main function in a motor vehicle. (10marks)

|  |  |  |  |
| --- | --- | --- | --- |
| **PART** | **NAME** | **VEHICLE SYSTEM** | **FUNCTION** |
| **J** |  |  |  |
| **K** |  |  |  |
| **L** |  |  |  |
| **M** |  |  |  |
| **N** |  |  |  |

**STATION 7**

**INSTRUCTIONS**

On the single engine provided;

1. Remove the exhaust valve.
2. Measure and record the exhaust valve diameter.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_mm

1. Name the tool you have used to take the reading.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Assemble back the engine.

**Let the examiner check your work.** (10mks)

**STATION 8**

**INSTRUCTIONS**

Study the welding equipment provided. Name and state the function of the parts labeled. (10mks)

|  |  |  |
| --- | --- | --- |
| **PART** | **NAME** | **FUNCTION** |
| **P** |  |  |
| **Q** |  |  |
| **R** |  |  |
| **S** |  |  |
| **T** |  |  |

**STATION 9**

**INSTRUCTIONS**

1. Take the following measurements of the marked parts of the camshaft provided. (7mks)
2. Camlobe height using vernier calipers.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Camlobe diameter using micrometer provided

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Journal ovality using dial indicator.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. State the accuracy of each of the following tools. (3mks)
2. Vernier calipers\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Micrometer\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Dial indicator\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**STATION 10**

**INSTRUCTIONS**

Connect correctly the battery ignition circuit, using the components of the ignition system laid on the bench. (10mks)

**Let the examiner check your work.**