

## **DIAGNOSTIC SKILLS TEST (T23)**

/ 44

CANDIDATE NAME: ..... GROUP NO: .....

PASS

Needs more training:

Date: .....

ASSESSOR: ..... *PRINT* ..... *SIGN*

1 Identify, in order the six steps undertaken to identify and rectify faults.

1. SYMPTOM
2. FAULT & LOCATION
3. CAUSE
4. THOROUGH INVESTIGATION
5. CORRECTIVE ACTION
6. MONITOR PERFORMANCE

(6 marks)

2) Define the following terms:-

a) **Fault Diagnosis**

A **fault** is an unexpected change or malfunction in a system, although it may not lead to physical failure or breakdown.

b) **Cause**

The producer of an effect, result, or consequence. Which is a basis for an action or response; **a reason**

c) **Fault**

An unexpected change resulting in character weakness that is something impairing or detracting from physical perfection.

d) **Fault Location**

The specific area that the fault is identified as being in, after thorough investigation.

**e) Symptom**

This is any circumstance, event, or condition that accompanies something and indicates its existence or occurrence.

(10 marks)

3 State three results, in chronological order, that could occur if a piece of equipment is allowed to continue to run with an unrectified fault.

i) Inefficiency – Costing more to run the normally would.

ii) Failure – Catastrophic or otherwise

iii) Injury or death to person(s)

(6 marks)

4 In conjunction with the correct steps you should have listed in Question 1,

Firstly: List all the possible faults that could result in oil leaking from a bearing housing.

Secondly: From the full facts identified below in "PROBLEM", detail the correct steps to take

PROBLEM)

A centrifugal pump is losing oil from the bearing housing, this loss only occurs when the pump is running.

Possible Faults resulting in an oil leak are:-

- 1) Bearing Fretting on the shaft creating a leak path around the shaft below the inner race.
- 2) Seal failure or ill fitting
- 3) A crack in the casing holding the seal in place
- 4) Over filling of oil creating over pressure, pushing seal of its seat until correct level attained.

(4 marks)

b) Steps to take, detailing precise procedures:-

- i) SYMPTOMS - Oil leaking during operation
- ii) LOCATION – Around the bearing housing
- iii) CAUSE – Possibilities listed above
- iv) THOROUGH INVESTIGATION –

Run up get to working temperature and observe conditions as they change until leak is witnessed.

Check oil level

Check bearing for signs of wear/movement

Check seal thoroughly

- v) Corrective action – Once specific fault is identified – Carry out the necessary repair
- vi) Monitor future performance.

(18 marks)