

3.19.2 Power Mechanics Paper 2 (447/2)

STATION 1

In the space below, sketch in good proportion an exploded drawing of the paper cartridge type of air cleaner. Label any **four** parts. (10 marks)

STATION 2

Using the tools, equipment and materials provided, make the scoop shown in **Figure 1**. (10 marks)

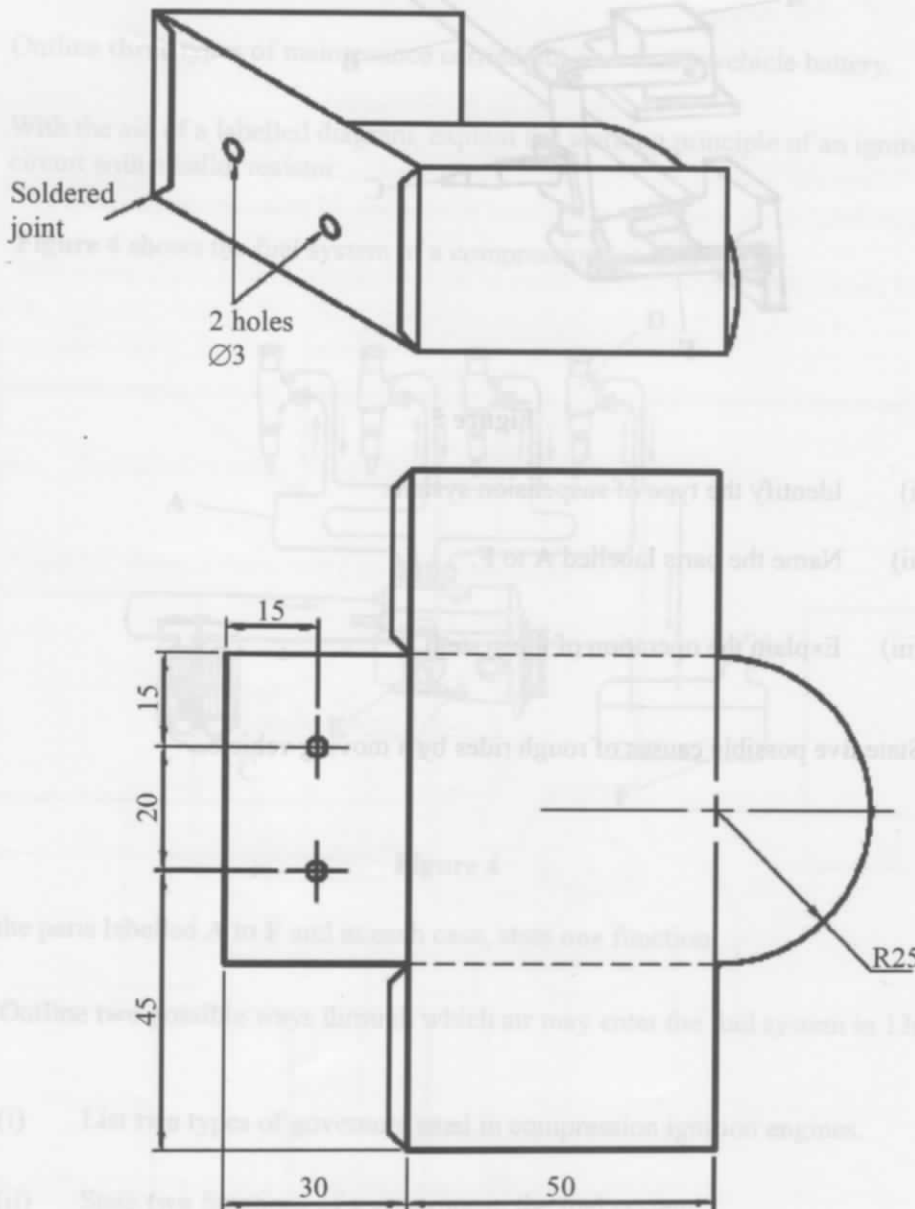


Figure 1

### STATION 3

Identify the parts labelled A, B, C, D and E. For each part, state the engine system it belongs to and its function. (10 marks)

PART	NAME	ENGINE SYSTEM	FUNCTION
A			
B			
C			
D			
E			

Using the materials, components and tools provided, perform the following tasks:

- (a) (1 mark) Inspect the horn and comment on its service condition.
- (b) (7 marks) Connect the horn circuit.
- (c) (2 marks) Adjust the horn sound to attain a smooth medium hooping.

LET THE EXAMINER CHECK YOUR WORK

**STATION 4**

The single cylinder engine provided has faults in the parts labelled 1 to 5 which will affect its operation. For each part, identify **one** fault, its effect and **one** remedy. Complete the table. (10 marks)

PART NO.	FAULT	EFFECT	REMEDY
1			
2			
3			
4			
5			

**STATION 5**

Using the materials, components and tools provided, perform the following tasks:

- (a) Inspect the horn and comment on its service condition; (1 mark)
- (b) Connect the horn circuit; (7 marks)
- (c) Adjust the horn sound to attain a smooth medium hooting. (2 marks)

**LET THE EXAMINER CHECK YOUR WORK**

### STATION 6

Identify the tools and substances provided and in each case, state their use in a motor vehicle.  
Complete the table below. (10 marks)

LABEL	ITEM	USE
G		
H		
J		
K		
L		
M		
N		
P		
Q		
R		

**STATION 7**

Using the tools and materials provided:

- (a) demonstrate to the examiner how to check surface warpage of the cylinder head provided. (4 marks)

- (b) (i) Measure and record the following:

Valve stem diameter .....

Valve height .....

Valve face width .....

Valve spring free length .....

(4 marks)

- (ii) State the accuracy of the following tools used in *b(i)* above:

Vernier Calliper .....

Micrometer.....

(2 marks)

**STATION 8**

- (a) Using the tools, materials and equipment provided, carry out the following service checks on the differential unit provided:

- (i) Backlash;

- (ii) Tooth contact.

(6 marks)

**LET THE EXAMINER CHECK YOUR WORK.**

- (b) (i) Count and record the number of crown wheel teeth. (1 mark)

- (ii) Calculate the final gear ratio if the number of pinion gear teeth is 15. (3 marks)

**LET THE EXAMINER CHECK YOUR WORK.**

STATION 9

On the gas welding equipment provided, perform the following tasks:

- (a) Identify the parts labelled **A, B, C and D.**
- (b) Without adjusting the regulator pressure, light up the equipment and adjust to get a carburising flame.
- (c) Shut down the equipment.

(10 marks)

LET THE EXAMINER CHECK YOUR WORK.

STATION 10

- (a) On the multi-cylinder provided demonstrate to the examiner how to identify a misfiring cylinder. (8 marks)

LET THE EXAMINER CHECK YOUR WORK.

- (b) Identify **two** possible causes of misfiring in (a) above. (2 marks)

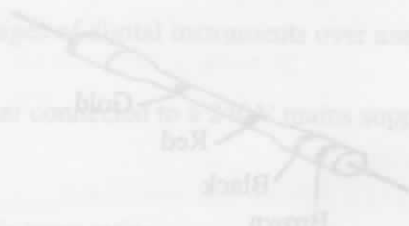


Figure 1