3.19.2 Power Mechanics Paper 2 (447/2)

STATION 1

In the space provided, sketch in good proportion an exploded view of a differential assembly. Label **four** parts. (10 marks)

STATION 2

Use the materials, tools and equipment provided to make the sheet metal object shown in **figure 1**.

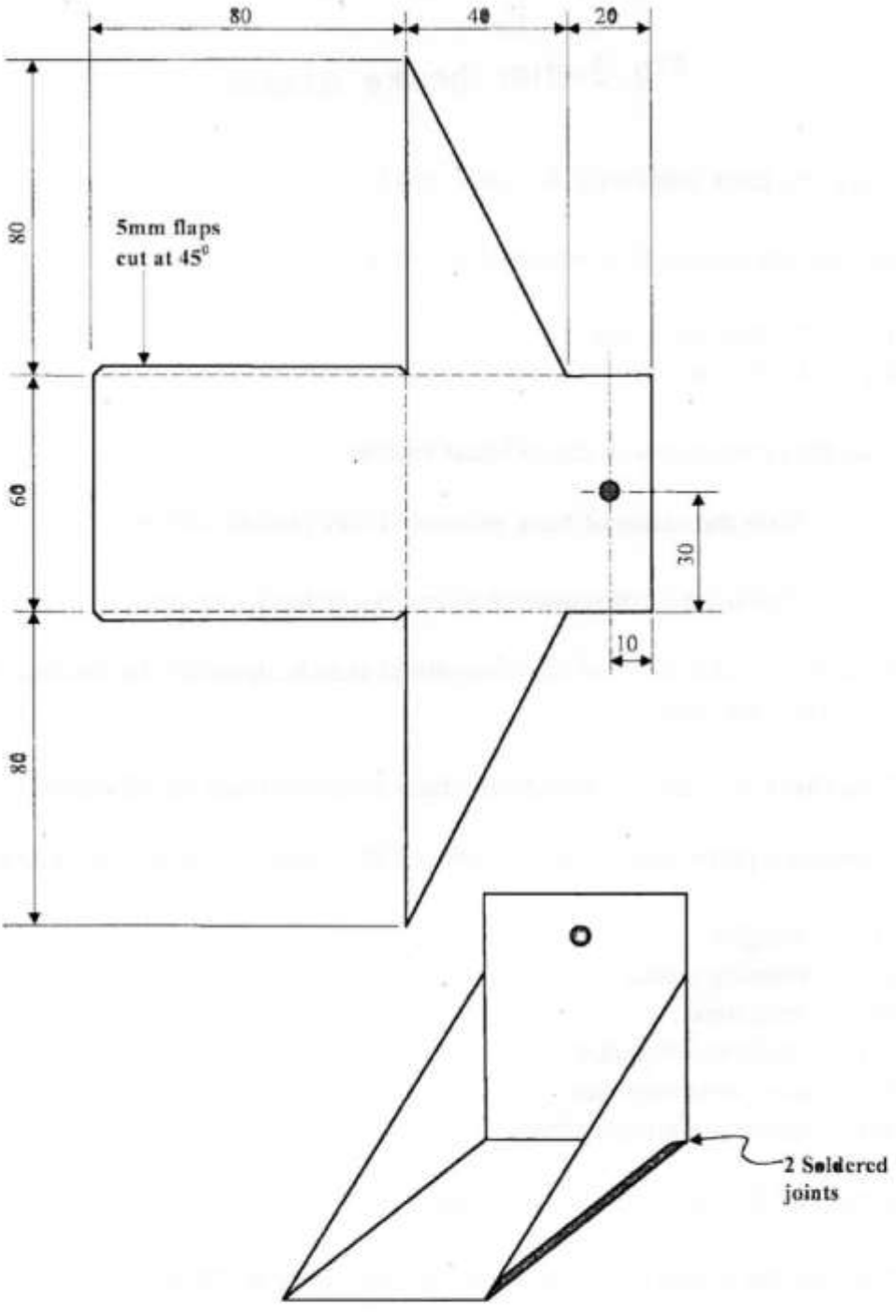

Figure 1

STATION 3

Identify the parts and components labelled **P** to **T** and in each case, state the vehicle system it belongs to and its purpose. Complete the table below. (10 marks)

PART	NAME	VEHICLE SYSTEM	PURPOSE
P			
Q			
R			
S			
T			

STATION 4

Using the instruments, materials and battery provided:

(a) Measure and record in the table below the cell voltage and the specific gravity for each of the cells.

LET THE EXAMINER CHECK YOUR WORK.

CELL NUMBER	VOLTAGE	SPECIFIC GRAVITY	STATE OF CHARGE
1			
2			
3			
4			
5			
6			

(b) Using the reading obtained in (a) above, comment on the state of the battery charge in each case. (10 marks)

STATION 5

Identify the parts labelled **A**, **B**, **C**, **D**, **E** and name the vehicle system in which each is used. For each part, identify **ONE** defect and state its effect on vehicle performance. Complete the table below. (10 marks)

PART	NAME	VEHICLE SYSTEM	DEFECT	EFFECT
A				
B				
C				
D				
E				

STATION 6

Using the components and materials provided, connect a **FOUR** lamp lighting circuit which satisfies the following conditions:

(i) lamp 1 and 2 are in series;

(ii) lamp 3 and 4 are in parallel;

(iii) the lamps are controlled by switch S such that when lamps 1 and 2 are ON, lamps 3 and 4 are OFF. (10 marks)

LET THE EXAMINER CHECK YOUR WORK.

STATION 7

On the vehicle provided:

(a) Measure the free brake movement. (8 marks)

(b) Comment on the state of the brakes. (2 marks)

LET THE EXAMINER CHECK YOUR WORK.

STATION 8

On the engine provided:

(a) Show the examiner **FOUR** visible components of the lubrication system. (4 marks)

(b) (i) Check the oil level;

(ii) Comment on the state of the oil level and the oil to the examiner. (6 marks)

LET THE EXAMINER CHECK YOUR WORK.

STATION 9

On the single cylinder engine provided, determine the compression ratio. (10 marks)

LET THE EXAMINER CHECK YOUR WORK.

STATION 10

On the multi-cylinder engine provided, carry out the following tasks:

(a) Remove the contact breaker points;

(b) Tell the examiner about the condition of the contact breaker points;

(c) Replace the contact breaker points and set the gap to 0.4 mm. (10 marks)

LET THE EXAMINER CHECK YOUR WORK.