

STATION 1

Figure 1 shows an exploded view of an aircraft segmented rotor brake unit.

- (a) In the space provided, sketch in good proportion the assembled view of the component. (7 marks)
- (b) Name the parts labelled 1, 2, 3, 4, 5 and 6. (3 marks)

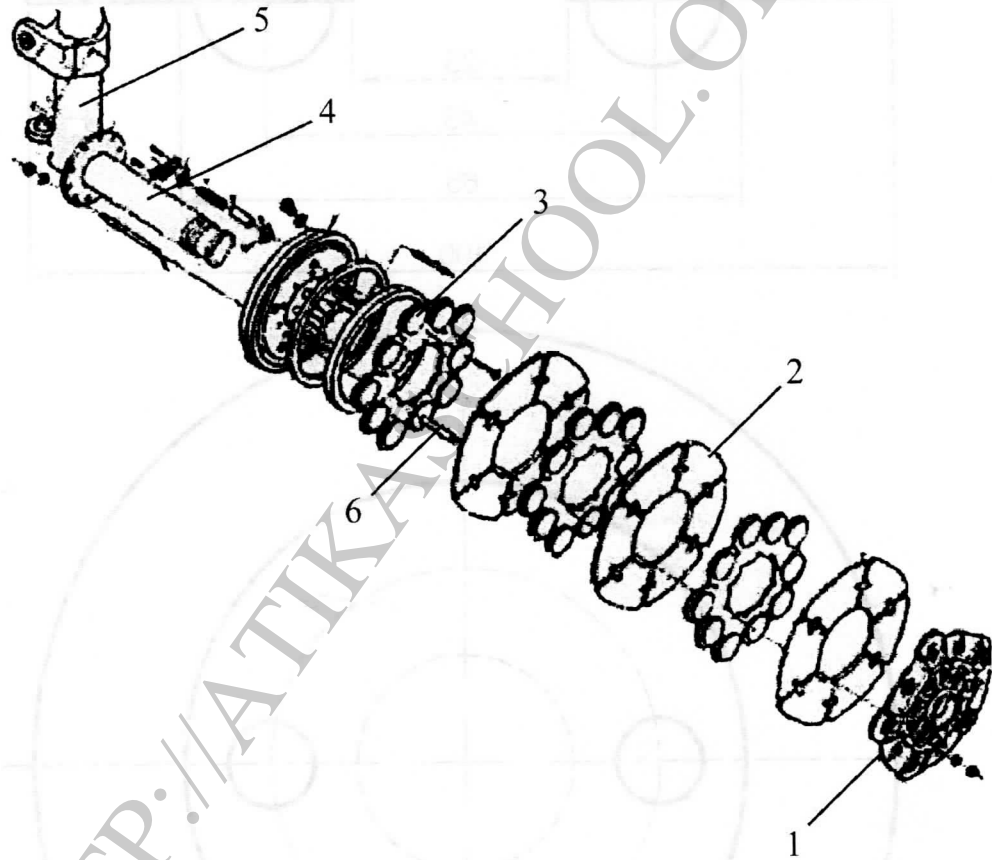


Figure 1



## STATION 2

### INSTRUCTIONS

Using the tools, equipment and materials provided, make an overlap patch as shown in Figure 2.  
(10 marks)

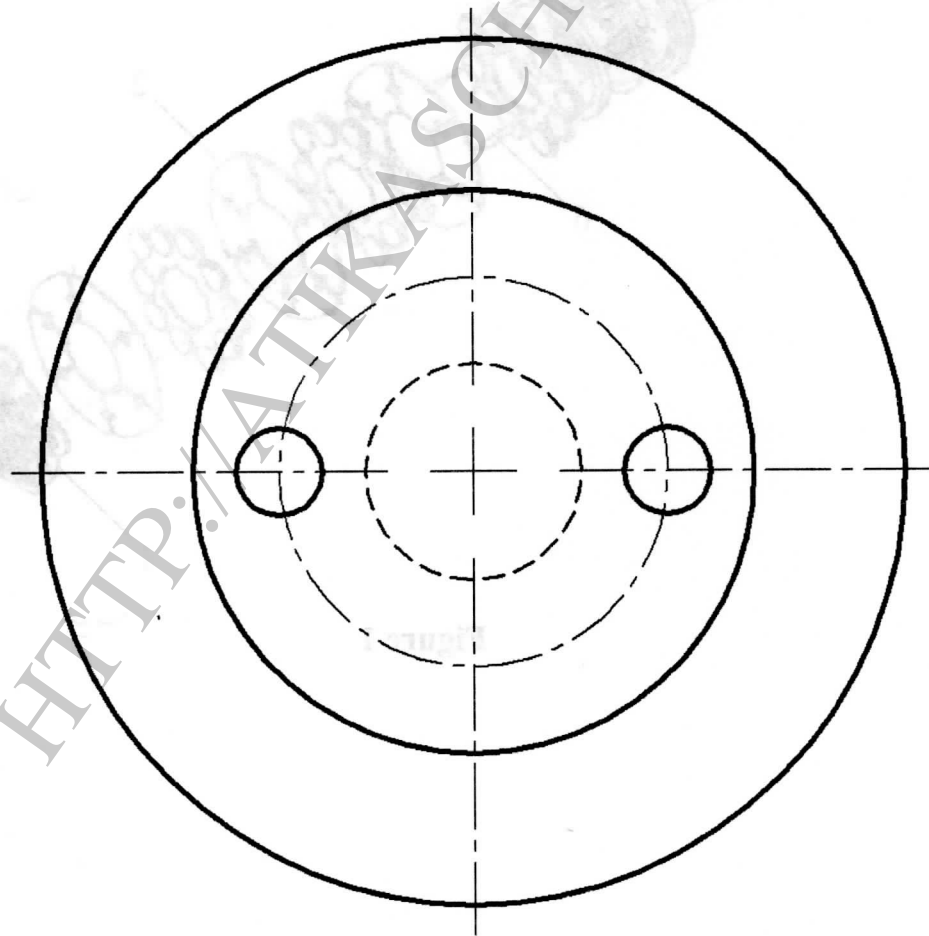
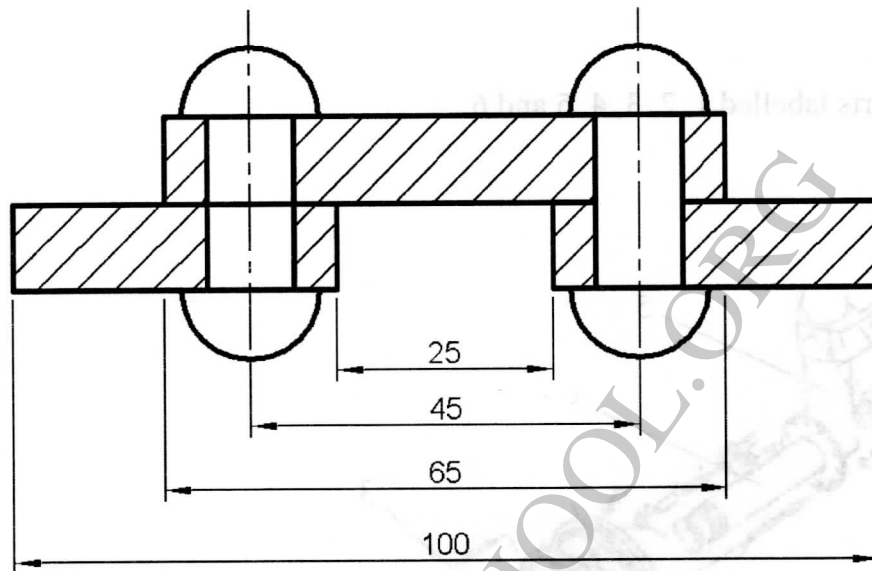


Figure 2



### STATION 3

#### INSTRUCTIONS

Using the tools and equipment provided, carry out the following tasks on each of the materials labelled A, B, C and D.

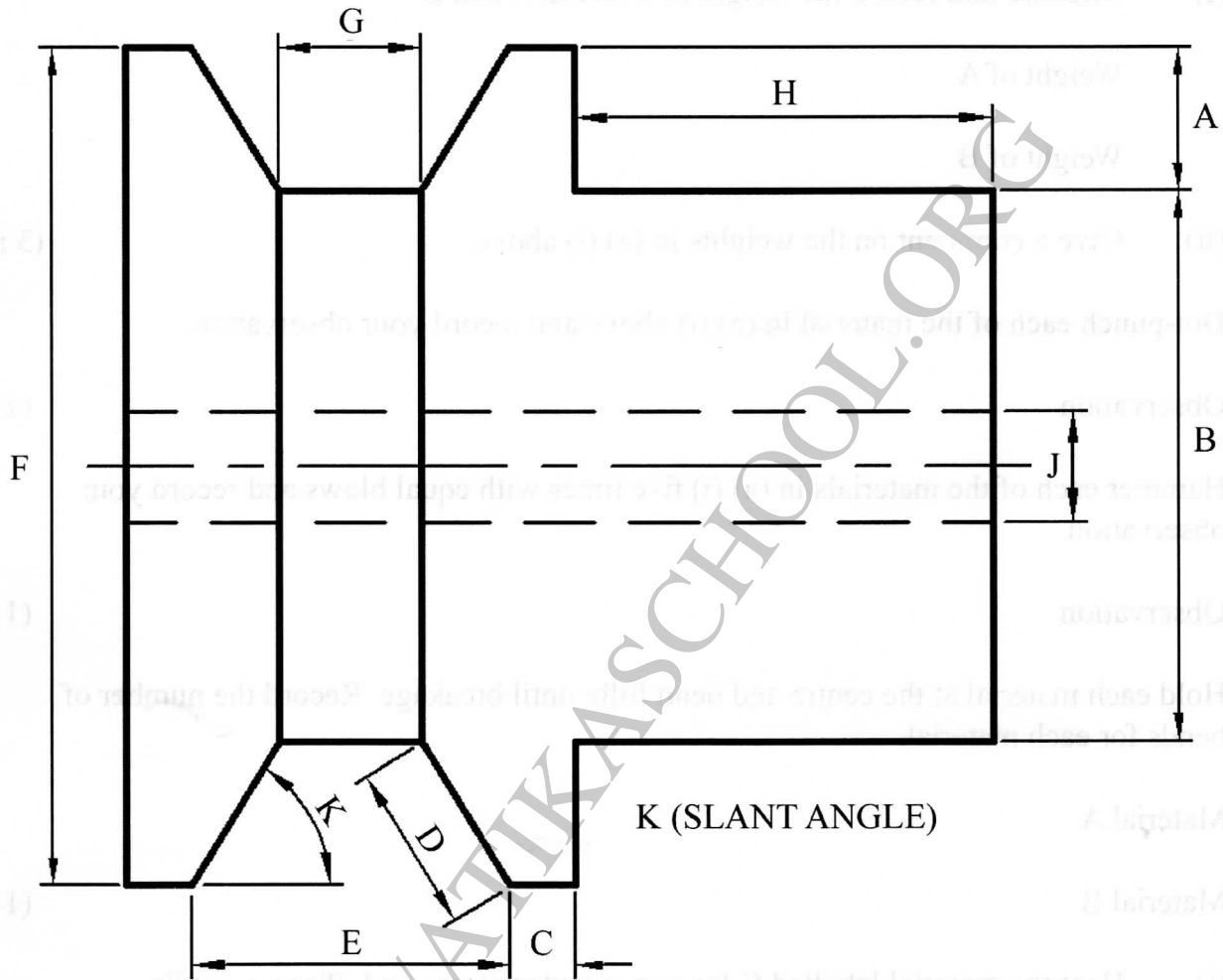
- (a) (i) Measure and record the weight of material A and B.
- Weight of A
- Weight of B
- (ii) Give a comment on the weights in (a) (i) above. (3 marks)
- (b) Dot-punch each of the material in (a) (i) above and record your observation.
- Observation (1 mark)
- (c) Hammer each of the materials in (a) (i) five times with equal blows and record your observation.
- Observation (1 mark)
- (d) Hold each material at the centre and bend fully until breakage. Record the number of bends for each material.
- Material A
- Material B (1 mark)
- (e) (i) Heat the material labelled C for **two** minutes at one end. Place a candle at the other end. Check and record your observation.
- Observation
- (ii) Repeat (e) (i) for material D. Record your observation.
- Observation (2 marks)
- (f) From observations (a)–(e), state where each material is best suited for use on an aircraft.
- Material A
- Material B (2 marks)



## STATION 4

### INSTRUCTIONS

Using the measuring instruments provided, take the measurements of the pulley parts labelled A, B, C, D, E, F, G, H, J and K as shown in Figure 3. Complete the table provided. (10 marks)



**Figure 3**

| Part measured  | Measurement (mm) |
|----------------|------------------|
| A              |                  |
| B              |                  |
| C              |                  |
| D              |                  |
| E              |                  |
| F              |                  |
| G              |                  |
| H              |                  |
| J              |                  |
| K (in degrees) |                  |



## STATION 5

### INSTRUCTIONS

Using the setup and tools provided carry out the following tasks.

- (a) Identify the parts labelled A and B. (1 mark)
- (b) Identify **two** systems where the system is applicable on an aircraft. (1 mark)
- (c) Tension the cable to maximum. Measure and record the tension. (2 marks)
- (d) Wire lock the setup for safety. Let the examiner check your work. (2 marks)
- (e) Demonstrate to the examiner.
  - (i) Three checks to be carried out on the setup to ensure safety
  - (ii) How the cable is loosened. (4 marks)

## STATION 6

### INSTRUCTIONS

- (a) Study the weather photographs labelled 1, 2 and 3 and complete the table provided. (4½ marks)

| Photograph | Weather Condition | Causes | Effects on aircraft operations |
|------------|-------------------|--------|--------------------------------|
| 1          |                   |        |                                |
| 2          |                   |        |                                |
| 3          |                   |        |                                |

- (b) Study the instruments labelled 4, 5 and 6 and complete the table provided. (4½ marks)

| Item | Grouping | Associated errors in flight | Component responsive |
|------|----------|-----------------------------|----------------------|
| 4    |          |                             |                      |
| 5    |          |                             |                      |
| 6    |          |                             |                      |

- (c) Using the aircraft model provided, identify the ground equipment used on the areas labelled 7 and 8. (1 mark)



## STATION 7

### INSTRUCTIONS

Using the tools and the component labelled X provided, carry out the following tasks:

- (a) (i) Identify the component. (2 marks)
- (ii) State the function of the component. (2 marks)
- (iii) Name the parts painted black and white. (2 marks)
- (b) (i) Dismantle the component. Let the examiner check your work. (5 marks)
- (ii) Demonstrate to the examiner the maintenance procedure of the component. (2 marks)
- (iii) Identify **four** defects on the component. (2 marks)
- (iv) State **four** possible causes of the defects: (1 mark)
- (c) Assemble the component. Let the examiner check your work. (1 mark)

## STATION 8

### INSTRUCTIONS

Study the components and tools provided and carry out the following tasks.

- (a) Identify the parts labelled G and H. (1 mark)
- (b) Identify areas where each is applicable. (1 mark)
- (c) Study and record three design differences between the parts labelled G and H. (3 marks)

| Difference in | Component G | Component H |
|---------------|-------------|-------------|
| Attachment    |             |             |
| Cooling       |             |             |
| Length        |             |             |

- (d) (i) Identify the component labelled F and state the system where used. (1 mark)
- (ii) Dismantle the component labelled F. Examine and record four parts with visible defects. (2 marks)
- (iii) Demonstrate to the examiner the correct procedure of assembling the component labelled F. (2 marks)



## STATION 9

### INSTRUCTIONS

Using the digital meter provided, measure for continuity between the input points 1–12 and output points A–L on the component provided and draw the circuit diagram. (10 marks)

## STATION 10

### INSTRUCTIONS

- (a) Using materials provided, make an airfoil (wing) by placing one end of the strip of paper between the pages of the book so that the other end hangs over the top.
- (i) Move the book swiftly through the air or blow across the top of the strip of paper. Record your observation:
  - (ii) Hold the book in the breeze of an electric fan so that the air blows over the top of the paper. Record your observation: (2 marks)
- (b)
- (i) Take the strip of paper out of the book. Grasp one end of the paper and set it against your chin, just below your mouth. Hold it in place with your thumb and blow over the top of the strip. Record your observation:
  - (ii) Fasten a paper clip on the end of the strip and repeat
    - (i) Record your observation:
    - (iii) Add another paper clip and repeat (b) (ii). Record your observation. (3 marks)
- (c) State the conclusion basing on the observations in (a) and (b) above. (1 mark)
- (d)
- (i) State the principle behind the observation:
  - (ii) Explain the reason behind the observation in (d) (i) above.
  - (iii) Relate the observations to an aircraft in flight. (4 marks)

