

**GENERAL CERTIFICATE OF EDUCATION BOARD**  
**Technical and Vocational Education Examination**

**JUNE 2021**

**INTERMEDIATE LEVEL**

Speciality	Electrical Specialities (EPS, ELN and HVAC)
Subject Title	ENGINEERING DRAWING 2
Subject Code No.	5315
Paper No.	2

**Duration: 2 HOURS**

**ENGINEERING DRAWING 2**  
**QUESTION BOOKLET**

- You are advised to read carefully through the question paper before you begin answering.
- The work to be done comprises two independent sections:
  - **SECTION A: Technological Study (20 marks). Answer 4 (four) Questions**
  - **SECTION B: Graphical Study (30 marks). Answer all Questions**
- Answer the Questions neatly in the spaces provided in the ANSWER BOOKLET.
- All Questions carry equal marks
- This Paper is rated at 60% of the entire Paper

**This paper aims at evaluating the candidates in the following competences:**

- Identifying and interpreting the functioning of parts
- Identifying and interpreting mechanical links
- Identifying and calculating fits and tolerances
- Identifying and designating engineering fasteners
- Identifying and interpreting functional dimensions
- Representing/interpreting a piece taken from a functional mechanism

**You are reminded of the necessity for good English and orderly presentation in your answers.**

*Turn Over*

**THEME: A SUPPORT OF A DRIVING MIRROR**

**I. DESCRIPTION AND FUNCTIONING**

The assembly drawing on page 4 represents the support of a driving mirror of a vehicle. The body **1** is linked to the frame of the vehicle by means of the support **4**. The stem of the mirror rotates on the body **1** through the rubber bushing **2**. This permits the driver to turn the mirror (not represented) to the desired position. The adjustment of piece **8** permits to control the blockage of the stem of the mirror.

**SECTION A: TECHNOLOGICAL STUDY / 20 marks**

**Question 1: Identification and functioning of parts (5 marks)**

- 1.1 Give the name of pieces **6** and **8** (3 marks)  
 1.2 State the function of piece **8**. (2 marks)

**Question 2: Knowledge of links (5 marks)**

- 1.1 Indicate the type of link between **4** and **7**. (1 mark)  
 1.2 Give the type of motion permitted by the link between **1** and **2**. (1 mark)  
 1.3 State three characteristics of the link between the body **1** and the stem of the driving mirror (3 marks)

**Question 3: Knowledge of materials and designation of elements (5 marks)**

- 1.1 Identify the material that piece **1** is made of. (2 marks)  
 1.2 Which of the symbols listed below represents the fastener **8**? (1 mark)  
**FBS, CHC, H M**  
 1.3 Give the standard designation of piece **7** (2 marks)

**Question 4: Tolerances and fits (5 marks)**

The fit between **1** and **2** is  $\text{Ø}20\text{H}7/\text{p}6$ . Given that

$$\text{Ø}20\text{H}7 = \text{Ø}20_0^{+0.021}$$

$$\text{Ø}20\text{p}6 = \text{Ø}20_{+0.022}^{+0.035}$$

- a) Calculate the maximum allowance (2 marks)  
 b) Calculate the minimum allowance (2 marks)  
 1.1 Deduce from the calculation the type of fit (1 mark)

**Question 5: Functional dimensions (5 marks)**

- 1.1 Draw the chain of dimensions relative to the clearance (A). (2 marks)
- 1.2 Write down the equations of maximum and minimum clearances of A (3 marks)

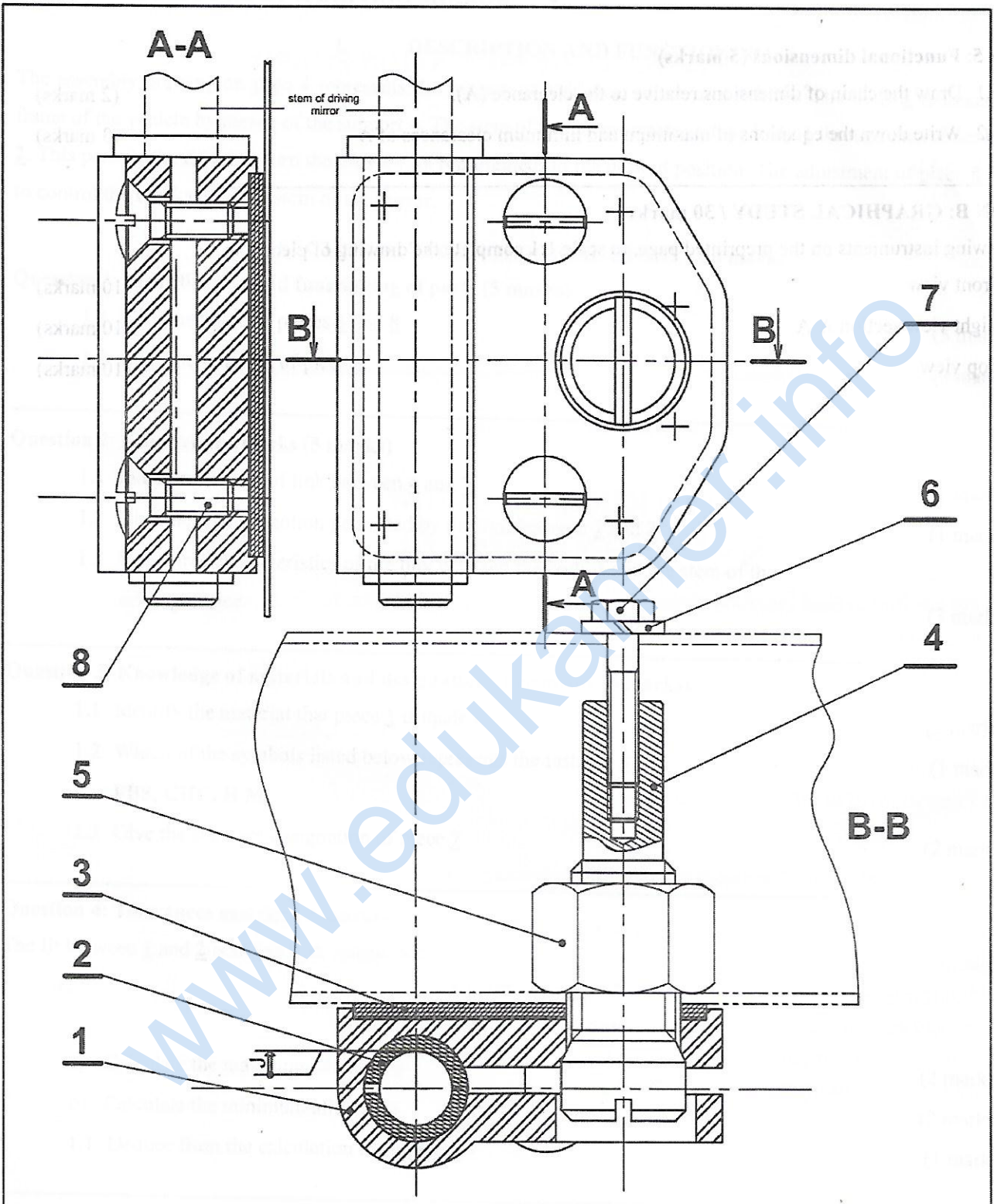
**SECTION B: GRAPHICAL STUDY / 30 marks**

Using drawing instruments on the preprinted page, to scale 1:1 complete the drawing of piece 1 in

- a. Front view (10 marks)
- b. Right view section A-A (10 marks)
- c. Top view (10 marks)

1	Body	Material	Designation	Qty	1
2	Flange	Material	Designation	Qty	1
3	Shaft	Material	Designation	Qty	1
4	Washer	Material	Designation	Qty	1
5	Nut	Material	Designation	Qty	1
6	Washer	Material	Designation	Qty	1
7	Nut	Material	Designation	Qty	1
8	Washer	Material	Designation	Qty	1
9	Nut	Material	Designation	Qty	1
10	Washer	Material	Designation	Qty	1
11	Nut	Material	Designation	Qty	1
12	Washer	Material	Designation	Qty	1
13	Nut	Material	Designation	Qty	1
14	Washer	Material	Designation	Qty	1
15	Nut	Material	Designation	Qty	1
16	Washer	Material	Designation	Qty	1
17	Nut	Material	Designation	Qty	1
18	Washer	Material	Designation	Qty	1
19	Nut	Material	Designation	Qty	1
20	Washer	Material	Designation	Qty	1





				5	1			
				4	1	Axis	E 30	Chrome-plated
				3	1	Protection plate	Plastic	
8				2	1	Circular ring	Plastic	
7				1	1	Body	A-S 10G	
6				Rep	Nbr	Designation	Material	Obs
<b>Scale: 1:1</b>							<b>GCE BOARD</b>	
<b>DRIVING MIRROR SUPPORT</b>							<b>A4V</b>	

REGISTRATION CENTRE NUMBER		CENTRE NAME	
CANDIDATE'S FULL NAMES			
CANDIDATE IDENTIFICATION NUMBER	SUBJECT CODE 5315	PAPER NUMBER 2	
FOR OFFICIAL USE ONLY (Candidate Random Code) ▶			
<b>GENERAL CERTIFICATE OF EDUCATION BOARD</b> Technical And Vocational Education Examination <b>INTERMEDIATE LEVEL</b>			
SUBJECT TITLE ENGINEERING DRAWING	SUBJECT CODE 5315	PAPER NUMBER 2	
EXAMINATION DATE: JUNE 2021			

**Duration: 2 HOURS**

## ENGINEERING DRAWING 2 ANSWER BOOKLET

- You are advised to read carefully through the question paper before you begin answering.
- The work to be done comprises two independent sections:
  - **SECTION A: Technological Study (20 marks). Answer four (4) questions**
  - **SECTION B: Graphical study (30 marks). Answer all questions**
- Answer the questions neatly in the spaces provided in the answer sheet.
- All questions carry equal marks
- This paper is rated at 60% of the entire paper

<i>FOR EXAMINERS' USE ONLY</i>	
Marked by: ----- Signature:----- Date -----	<u>SCORE</u>
Checked by: ----- Signature:----- Date -----	

**You are reminded of the necessity for good English and orderly presentation in your answers. In calculations you are advised to show all the steps in your working, giving your answer at each stage**



REGISTRATION CENTRE NUMBER		CENTRE NAME	
CANDIDATE'S FULL NAME			
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SUBJECT TITLE		SUBJECT CODE	
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1		1	
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**SECTION A: TECHNOLOGICAL STUDY (20 marks)**

**Question 1: Identification and functioning of parts**

Name of pieces 6 and 8

1.1 Name of piece 6 .....

1.2 Name of piece 8 .....

1.3 Function of piece 8 .....

**Question 2: Knowledge of links**

2.1 Indicate the type of link between 4 and 7

.....  
.....

2.2 Give the type of motion permitted between 1 and 2.

.....  
.....

2.3 State three characteristics of the link between the body 1 and the stem

.....  
.....

**Question 3: Knowledge of materials and designation of elements**

3.1 Identify the material of piece 1

.....

3.2 Choose the symbol representing the fastener 8.

.....

3.3 Give the standard designation of 7

.....

.....

**Question 4: Tolerances and fits**

The fit between 1 and 2 is  $\text{Ø}20\text{H}7/\text{p}6$ .

4.1 Calculate the maximum allowance

.....  
.....  
.....  
.....

4.2 Calculate the minimum allowance

.....  
.....  
.....  
.....

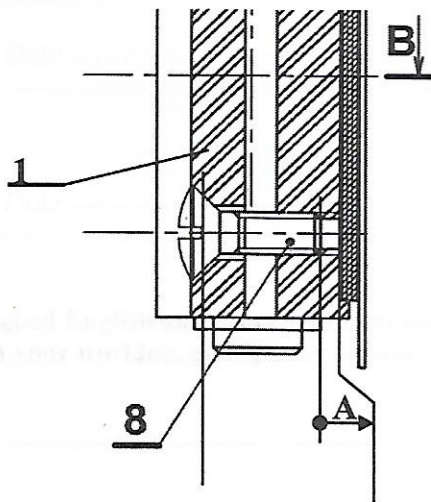
4.3 Deduce from the calculation the type of fit

.....  
.....

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**Question 5: Functional dimensions**

5.1 Draw the chain of dimension relative to the clearance (A).



5.2 Equation of maximum and minimum clearances of A

5.2.1 Equation of maximum clearance.....

5.2.2 Equation of minimum clearance .....

**SECTION B: GRAPHICAL STUDY / 30marks**

On the pre-printed paper on page 5, and to a scale of 1:1 complete the following views of piece 1.

- a. Front view
- b. Right view section A-A
- c. Top view



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