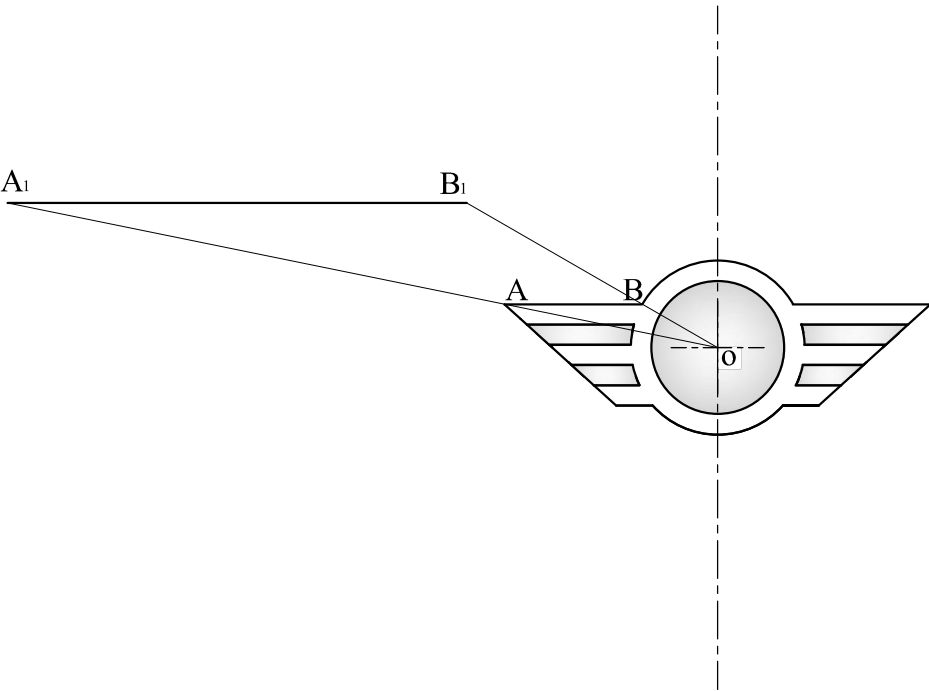


Question 1. The drawing of a car emblem is shown below. By means of geometrical construction, line AB has been enlarged to A₁B₁. Complete the construction to enlarge the whole drawing using centre O as the pole.

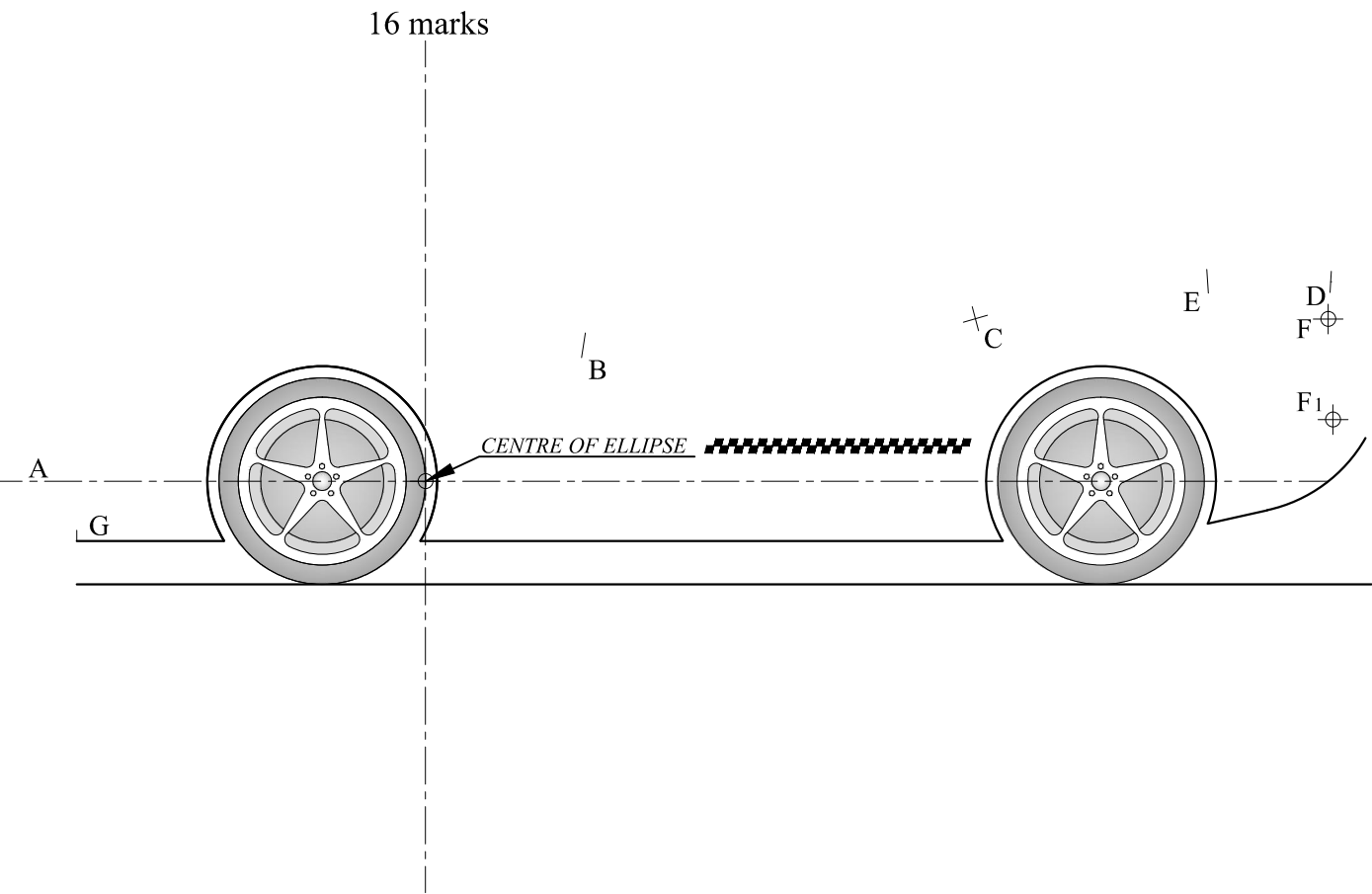
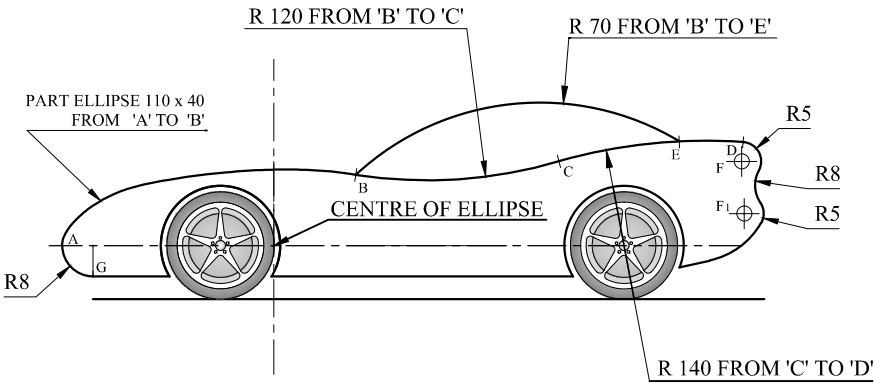
Note: To save time, construct the left-hand side of the emblem and mirror copy (reflect) the right-hand side.

10 marks



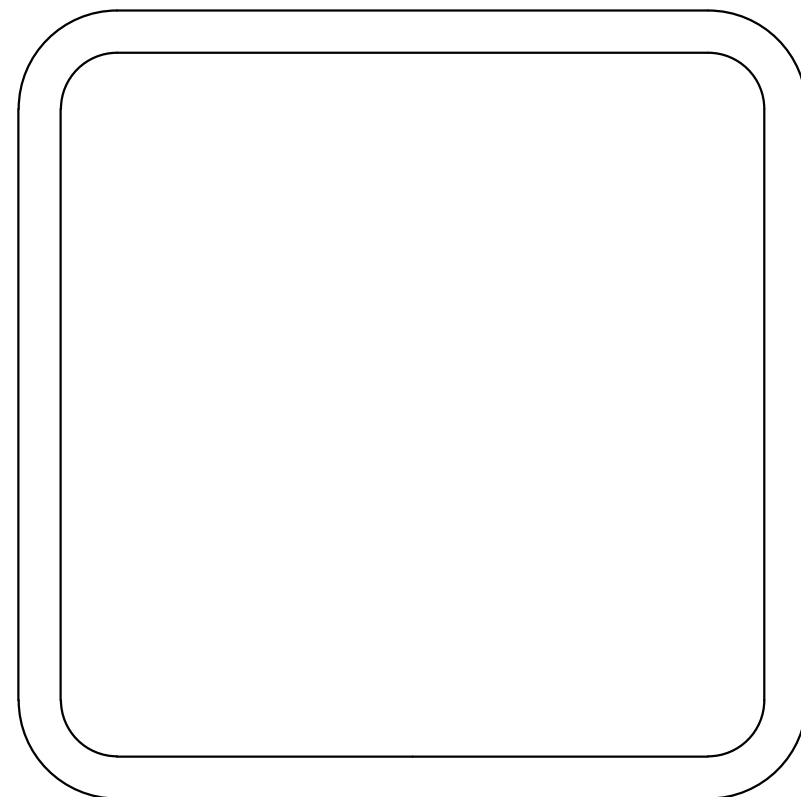
Question 2. The profile of a sports car is given on the right. Using the given start lines and dimensions, draw the view showing clearly the construction required to complete the part ellipse, and to locate the required centres.

- Notes:
- Start by constructing the part ellipse AB having a major axis of 110mm and a minor axis of 40mm.
 - Points A, B, C, D, and G are all points of tangencies.
 - Points B and E are endpoints of arc R70.
 - F and F₁ are centres of the two R5 arcs.

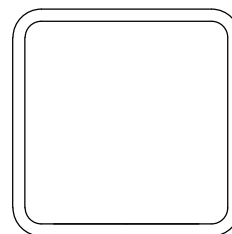


The blank indicator lamp situated in the lower centre of the dashboard is intended to remind the driver to **wear the seat belt**. You have been asked to design the required graphic symbol which should have the same characteristics as the symbols given below. In the spaces provided below, draw:

- 12 marks

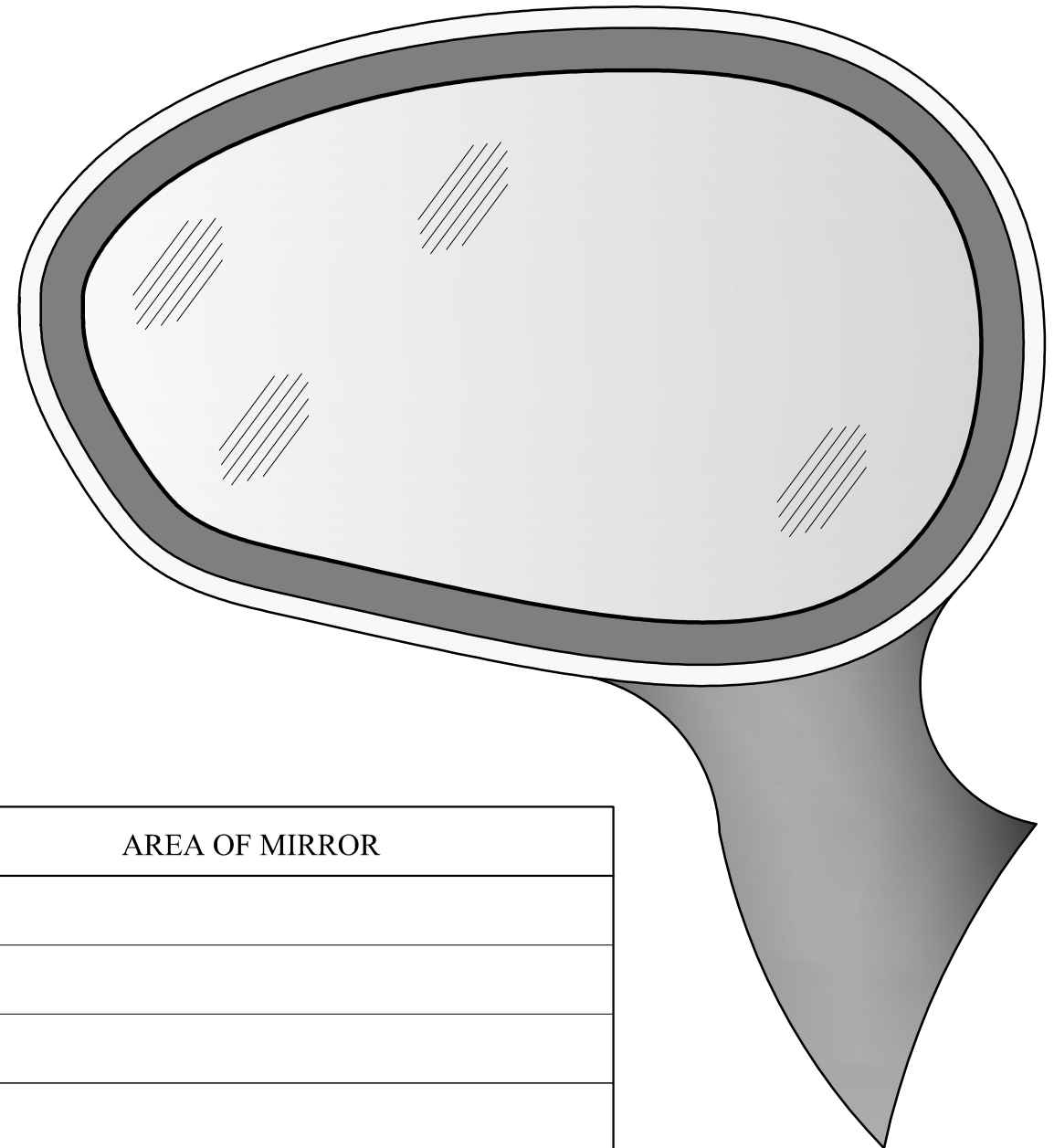


Preliminary sketch



Wear seat belt symbol

12 marks



| AREA OF MIRROR | |
|----------------------|-----------------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| TOTAL AREA OF MIRROR | cm ² |

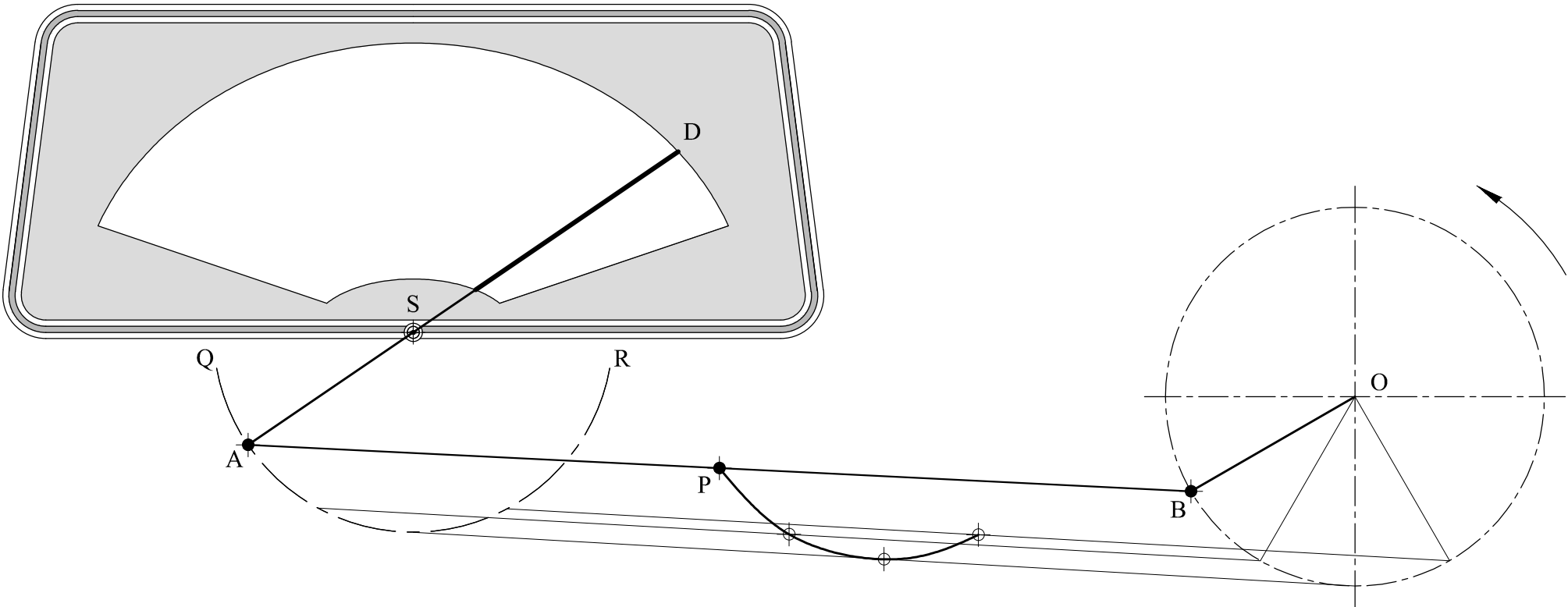
Question 7. The drawing shows a car windscreen wiper mechanism which consists of the following items:

- fixed pivots O and S
- crank OB
- link AB
- wiper AD

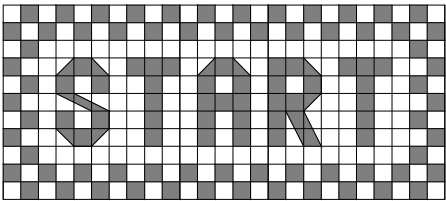
Crank OB rotates about fixed pivot O.
Link AB is pivoted at A and B.
Wiper AD oscillates about fixed pivot S.
Pivot A oscillates about pivot S along the path of arc QR.
The locus of point P for the first quarter turn of the crank is given.

Plot the locus traced out by the mid-point P of link AB for the remaining three quarters of a revolution of crank OB.

12 marks



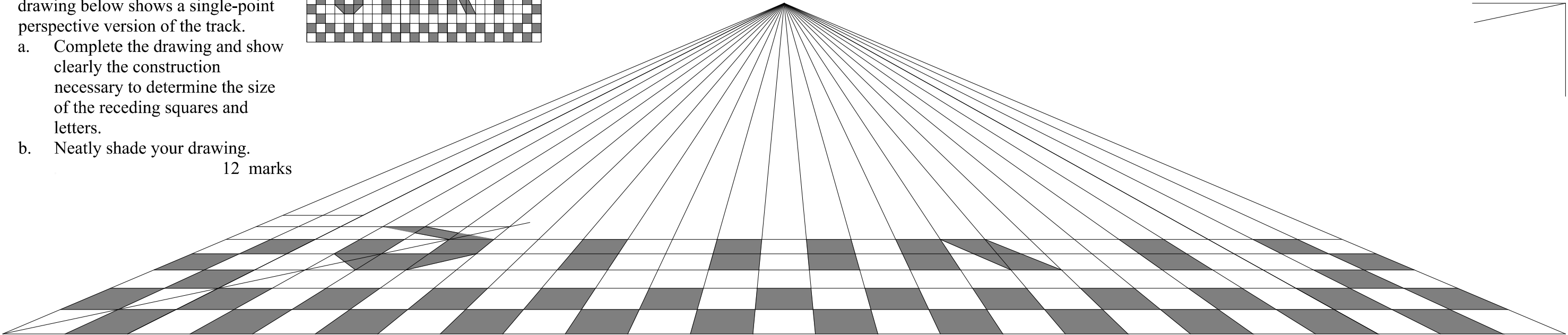
Question 8. The figure on the right shows a plan view of the starting line of a car racing track. The incomplete drawing below shows a single-point perspective version of the track.



- a. Complete the drawing and show clearly the construction necessary to determine the size of the receding squares and letters.

- b. Neatly shade your drawing.

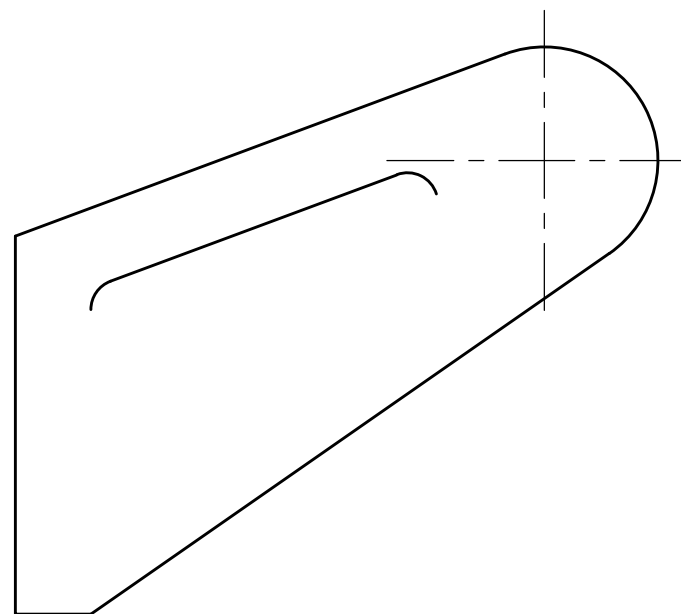
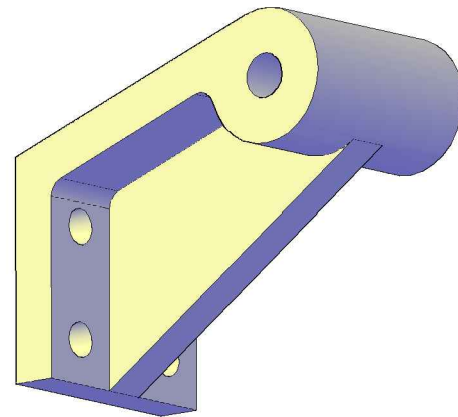
12 marks



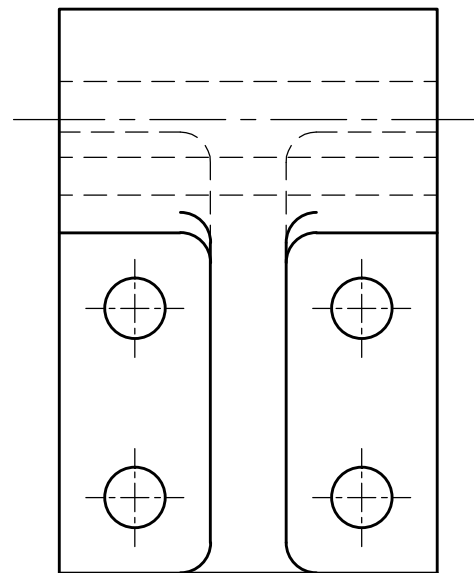
Question 3. A pictorial view, an end view, a plan view and an incomplete front view of a LINKAGE BRACKET are given.

- Complete the sectional front A-A.
- Print the angle of the projection used.

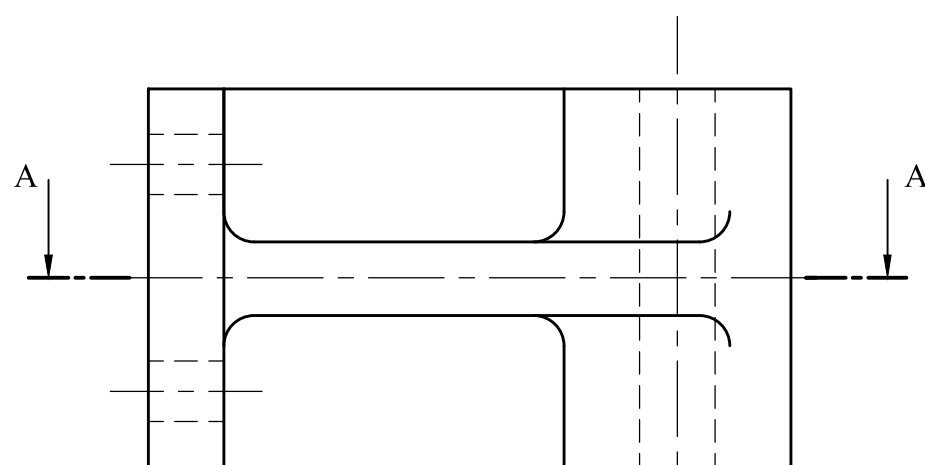
10 marks



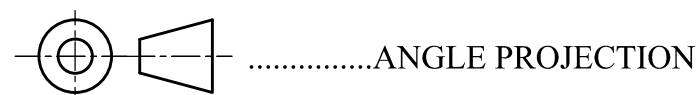
SECTIONAL FRONT A-A



END VIEW



PLAN (AS SEEN FROM BELOW)

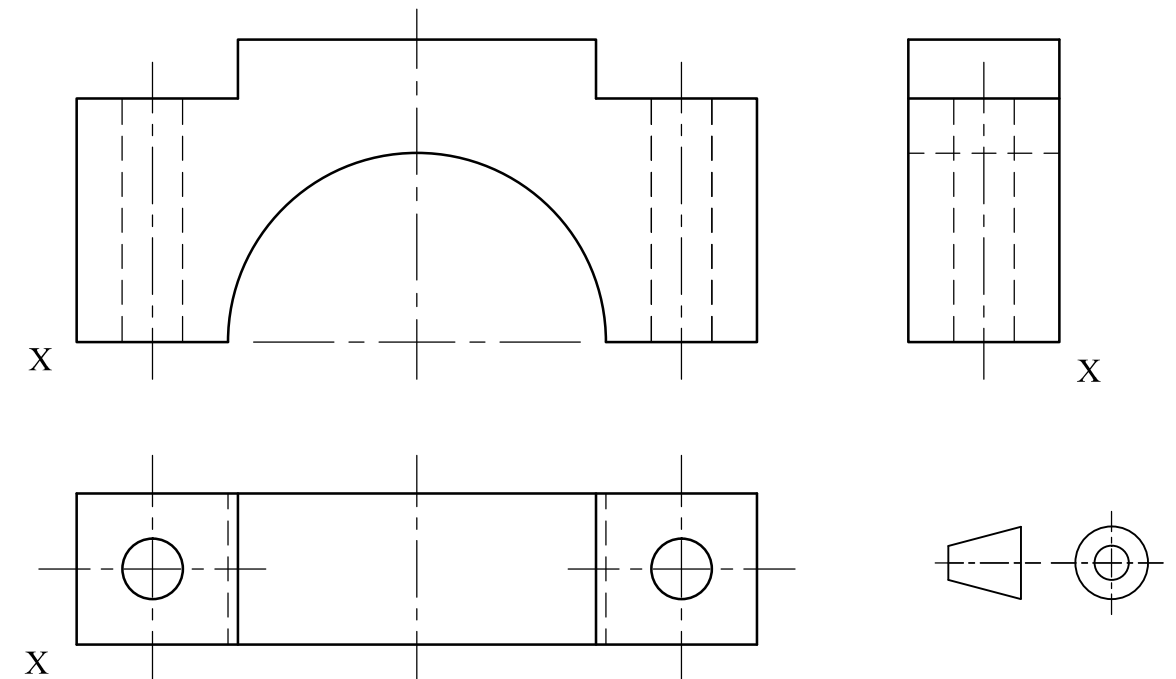


Question 4. Three **full size** orthographic views of a car engine BEARING CAP are given below. Measure the given drawings and:

- insert three important linear dimensions,
- insert two important radial dimensions,
- using the given start lines below, project a planometric view of the Bearing Cap.

Note: Place corner X in the lowermost position.

16 marks



Sheet 2 of 4

