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Question 1:
When do we say that work is done?

Answer 1:
Work is done whenever the given conditions are satisfied:

(i) A force acts on the body.

(ii) There is a displacement of the body caused by the applied force along the direction of the applied force.

Question 2:
Write an expression for the work done when a force is acting on an object in the direction of its displacement.

Answer 2:
When a force F displaces a body through a distance S in the direction of the applied force, then the work done W on the body is given by the expression:

$$\text{Work done} = \text{Force} \times \text{Displacement}$$
$$W = F \times s$$

Question 3:
Define 1 J of work.

Answer 3:
1 J is the amount of work done by a force of 1 N on an object that displaces it through a distance of 1 m in the direction of the applied force. 80

Question 4:

A pair of bullocks exerts a force of 140 N on a plough. The field being ploughed is 15 m long. How much work is done in ploughing the length of the field?

Answer 4:

Work done by the bullocks is given by the expression:

Work done = Force × Displacement

$W = F \times d$

Where,

Applied force, $F = 140$ N

Displacement, $d = 15$ m

$W = 140 \times 15 = 2100$ J

Hence, 2100 J of work is done in ploughing the length of the field.