Chapter 1 Class 11 Sets
- Case Based Question Worksheet 1
by *teachoo*

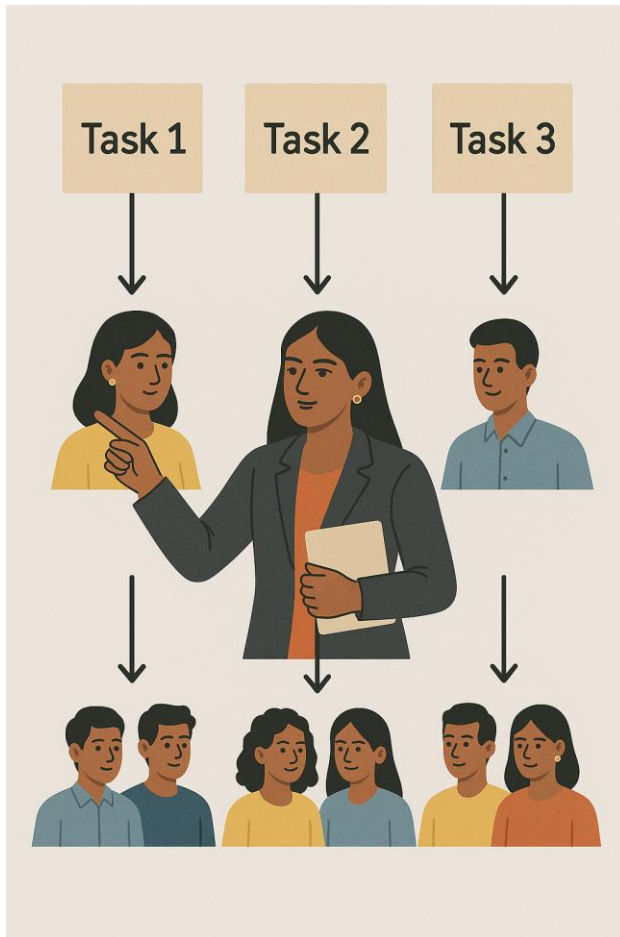**Chapter: Chapter 1 Class 11 Maths – Sets**

Name: _____

School: _____

Roll Number: _____

Case 1: Project Management

A project manager, Priya, is assigning tasks based on her team's skills. Let U be the set of all team members.

- P = { members skilled in Programming }

- D = { members skilled in Design }

- W = { members skilled in Technical Writing }

1. (1 mark) Priya needs to find a person who can both program and design for a user interface task. Which set operation represents her search for suitable members?

2. (1 mark) To write the user manual, Priya needs someone with writing skills but no programming skills (to ensure it's written from a nontechnical perspective). Which set represents this need?

3. (1 mark) What does the set $(P \cup D \cup W)'$ represent in the context of this project team?

4. (2 marks) The final product launch requires a team that has at least one programmer AND at least one designer. Let the set of launchready teams be T . Is it correct to say $T = P \cup D$? Explain why or why not.
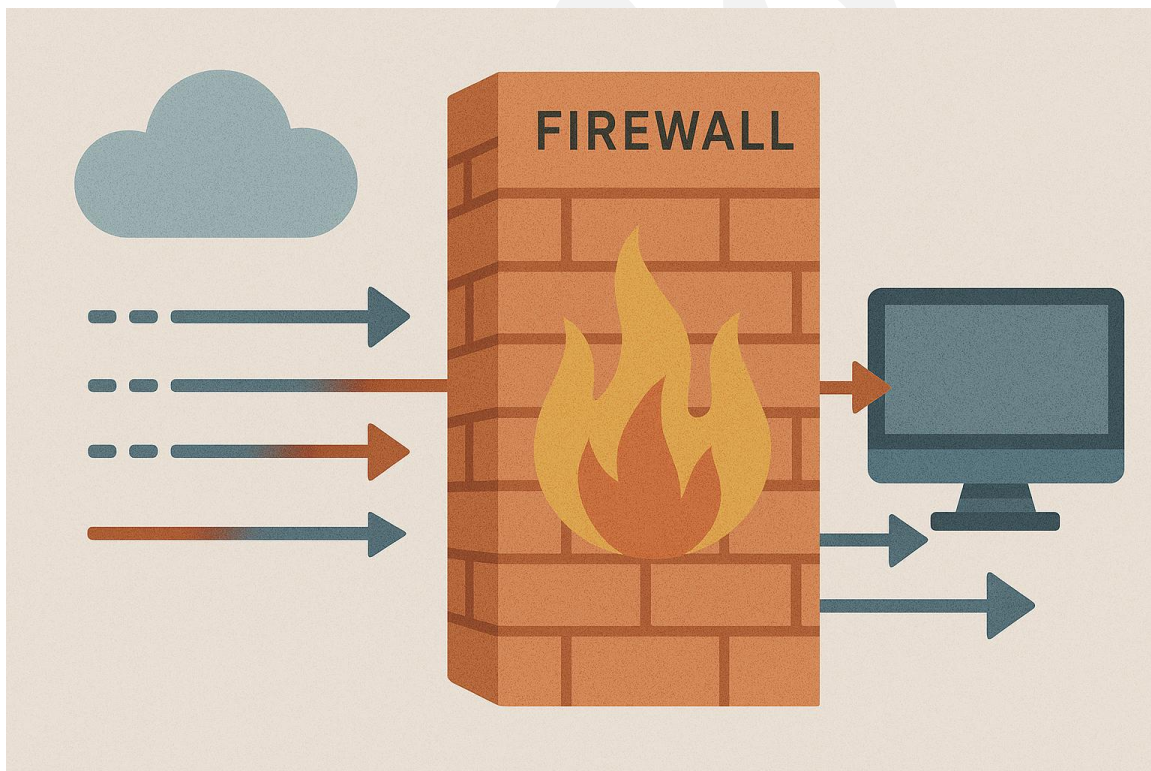
Case 2: Market Research

A phone company analyzes survey data for a new model. Let U be all survey respondents.

- A = { respondents who liked Feature A}

- B = { respondents who liked Feature B}

- Y = { respondents under 30 years old }

1. (1 mark) The company wants to find the group of young people (under 30) who liked Feature A. Which set represents this target demographic?

2. (1 mark) Describe the set $A \cup B$ in words.

3. (1 mark) What does the set $A - B$ represent in terms of customer feedback?

4. (2 marks) The marketing team wants to run an ad campaign targeting people who liked Feature A but are NOT under 30. Write the set for this target audience. If this set is empty, what does it imply about the appeal of Feature A?

Case 3: Network Security

A firewall applies rules to network traffic. Let U be all incoming data packets.

- T = { packets from 'Trusted' IP addresses }

- V = { packets that have been scanned for 'Viruses'}

- B = { packets that are trying to access a 'Blocked' port }

1. (1 mark) The firewall automatically allows any packet that is from a trusted IP address. Which set represents these automatically allowed packets?

2. (1 mark) A high-security rule states that a packet is only allowed in if it's from a trusted source AND has been scanned for viruses. Which set represents packets that pass this rule?

3. (1 mark) Any packet trying to access a blocked port is immediately rejected. Which set represents these rejected packets?

4. (2 marks) A warning is logged for any packet that is NOT from a trusted source but is also NOT trying to access a blocked port. Write the set notation for these logged packets. Why would a security admin be interested in this specific set?

Important links

- Answer of this worksheet - https://www.teachoo.com/25610/5371/Case-Based-Questions---Worksheet-1/category/Teachoo-Questions---Case-Based/

- Full Chapter with Explanation, Activity, Worksheets and more – https://www.teachoo.com/subjects/cbse-maths/class-11th/ch1-11th-sets/

- Maths Class 11 - https://www.teachoo.com/subjects/cbse-maths/class-11th/

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