

How to use this sheet. Test each pair of classes for overlap in turn, then combine the three answers into one diagram. For numbered-diagram questions, remember that "only A" means the part of A shared with nothing else, and "A and B" is not the same as "A and B only."

Quick reference — Five shapes: separate, two subsets of one, fully nested, two overlapping plus one separate, all three overlapping · Exactly two = sum of the three two-way-only regions · At least one = total minus "none"

Section A · Choosing the correct diagram

All questions are built to the AAI pattern. No question in this chapter was found in any extractable or recovered previous year paper.

1. Which standard diagram represents three classes with absolutely no relationship to one another, such as Chair, Mountain and Pen?

(1) Three fully nested circles (2) Three overlapping circles (3) Three completely separate circles (4) Two overlapping circles and one separate

2. Kolkata, West Bengal and India form a chain where each smaller place lies entirely within the larger one. Which diagram fits?

(1) Three separate circles (2) Three fully nested circles (3) Two disjoint circles inside a third (4) Three partially overlapping circles

3. For the classes Animal, Dog and Cat, which relationship is correct?

(1) All three overlap partially (2) Dog and Cat are disjoint circles, both fully inside Animal (3) Three separate circles (4) Cat is fully inside Dog

4. For the classes Doctor, Woman and Mother, which relationship is correct?

(1) All three overlap partially (2) The three are completely unrelated (3) Doctor is fully inside Mother (4) Woman is fully inside Doctor

5. For the classes Vehicle, Car and Aeroplane, which relationship is correct?

(1) All three overlap partially (2) Three completely separate circles (3) Car and Aeroplane overlap, both separate from Vehicle (4) Car and Aeroplane are two disjoint circles, both fully inside Vehicle

Section B · Reading a numbered diagram

6. In a numbered Venn diagram, the phrase "only A" refers to:

(1) Every region inside circle A, including overlaps (2) The part of A shared with no other circle (3) The region shared by A and B (4) The region outside all circles

7. A survey of 100 people gives: only Tea = 30, only Coffee = 20, only Juice = 15, Tea-Coffee only = 10, Coffee-Juice only = 8, Tea-Juice only = 7, all three = 5. How many people like Tea in total?

(1) 30 (2) 40 (3) 52 (4) 47

8. Using the same survey, how many people like exactly two of the three drinks?

(1) 65 (2) 95 (3) 25 (4) 30

9. Using the same survey, how many people like exactly one of the three drinks?

(1) 65 (2) 95 (3) 25 (4) 5

10. Using the same survey, how many people like at least one of the three drinks?

(1) 65 (2) 90 (3) 100 (4) 95

11. Using the same survey, how many people like none of the three drinks?

(1) 0 (2) 5 (3) 10 (4) 15

12. Using the same survey, how many people like both Coffee and Juice (whether or not they also like Tea)?

(1) 8 (2) 13 (3) 20 (4) 28

Answer key: 1. (3) 2. (2) 3. (2) 4. (1) 5. (4) 6. (2) 7. (3) 8. (3) 9. (1) 10. (4) 11. (2) 12. (2)

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