18PDM301L – Analytical and Logical Thinking Skills

Worksheet – SETs

1. Which of the following Sets are null sets ?
a) { }   b) Ø   c) {0}   d) Both (a) and (b)

2. Number of subsets of a set of order three is
a) 3   b) 8   c) 9   d) 27

3. If A and B are sets and A U B = A ∩ B, then
a) A = B   b) A = Ø   c) B = Ø   d) None of these

4. Every set is a _____ of itself
a) Complement   b) Proper subset   c) Improper subset   d) None of these

5. Empty set is a _____
a) Invalid set   b) Infinite set   c) Finite set   d) None of these

6. A' will contain how many elements from set A
a) 0   b) 1   c) All elements   d) Infinite

7. If A and B are two sets, then (A – B) U B is _____
a) A   b) A ∩ B   c) A U B   d) { }

8. If A and B are two sets, then (A – B) ∩ B is _____
a) A   b) B   c) A ∩ B   d) { }

9. If A c B c C, then (A – B) U (B – C) U (C – A) = ?
a) A U B U C   b) A ∩ B ∩ C   c) { }   d) A U (B ∩ C)

10. If A and B have n elements in common, How many elements do AXB and BXA have in common
a) n   b) n^2 c) n^3 d) Cannot be determined

11. In a group there were 115 people whose proofs of identity were being verified. Some had Aadhaar card, some had Voter id and some had both. If 65 had Aadhaar and 30 had both, how many had Voter id only and not Aadhaar card?
a) 30   b) 50   c) 80   d) None of these

12. In a school, the number of students who prefer coffee is twice the number of students who take both coffee and tea and the number of students who prefer only tea is half the number of students who prefer only coffee. And the students who do not take both the drinks are equal to ¼ of the number of students who take both the drinks. If there are 10 students who do not take any of the drinks then what is the total number of students in the class?

a) 100   b) 110   c) 120   d) 140

13. In a Bakery they bake Vanilla cakes and Chocolate cakes. Chocolate cakes outnumber the Vanilla cakes by 20 and there are 10 cakes with both the flavours. 40 cakes of other flavours are also made. How many Vanilla cakes are made if they have made 200 cakes?
a) 65   b) 75   c) 85   d) 5

Directions for questions 14 and 15: Read the following information and answer the questions.
In a class, 40% of the students gave their names to participate in Cricket and 58% to participate in Football. Ten students participate in neither of these two and six students wanted to participate in both.

14. What percentage of students wants to participate only in Cricket?
a) 50%   b) 40%   c) 37%   d) 35%

15. What percentage of students wants to participate exactly in one game?
a) 60%   b) 58%   c) 92%   d) 98%

Directions for questions 16 and 17: In a survey of Raipur city, it was found that 40% citizens prefer Navbharat Newspaper, 32% prefer Dainik Bhaskar and 50% prefer Hari Bhumi, only 5% prefer all the three, 10% prefer Navbharat and Dainik Bhaskar, 18% prefer Dainik Bhaskar and Hari Bhumi and 20% prefer Navbharat and Hari Bhumi.

16. Find the ratio of those who prefer only Dainik Bhaskar to those who prefer only Hari Bhumi?
a) 2 : 3   b) 1 : 2   c) 8 : 17   d) 9 : 17

17. What is the ratio of those who prefer only Hari Bhumi to those who prefer either Navbharat or Dainik Bhaskar or both?
a) 17 : 62   b) 17 : 80   c) 17 : 29   d) 17 : 49

18. In a college symposium, 3 events were arranged namely Debating, Ad-zap and Dumb charades. The number of students who have participated in at least one event are 35 times the number of students who have not participated in any of the events. Students who have participated in utmost 2 events are 15 times the students who have not participated in any of the program. If 7 students did not participate in any of the events, then find how many students participated in all the three events?
a) 150   b) 149   c) 140   d) 147

Directions for questions 19 and 20: Read the following information and answer the questions.
A survey was conducted among 700 mobile users. It was found that 240 people had Nokia, 280 people had Sony and 330 people had Samsung mobiles. 60 of them had exactly two out of three brands. Each owns at least one of the three brands.

19. How many people had all the three brands?

a) 50 b) 40 c) 45 d) 60

20. If 22 owners had only Sony and Samsung with them then how many people have only Nokia?

a) 157 b) 170 c) 165 d) 195

14. In a school, the number of students who prefer coffee is twice the number of students who take both coffee and tea and the number of students who prefer only tea is half the number of students who prefer only coffee. And the students who do not take both the drinks are equal to ¼ of the number of students who take both the drinks. If there are 10 students who do not take any of the drinks then what is the total number of students in the class?
a) 100   b) 110   c) 120   d) 140

15. In a college symposium, 3 events were arranged namely Debating, Ad-zap and Dumb charades. The number of students who have participated in at least one event are 35 times the number of students who have not participated in any of the events. Students who have participated in utmost 2 events are 15 times the students who have not participated in any of the program. If 7 students did not participate in any of the events, then find how many students participated in all the three events?
a) 150   b) 149   c) 140   d) 147

16. Manju bakes Vanilla cakes and Chocolate cakes. Chocolate cakes outnumber the Vanilla cakes by 20 and there are 10 cakes with both the flavours. 40 cakes of other flavours are also made. How many Vanilla cakes are made if they have made 200 cakes?
a) 65   b) 75   c) 85   d) 5

Directions for questions 17 to 20:
In a survey of a city among 360 people, it was found that 170 citizens prefer using Hamam soap, 180 prefer using Lux soap and150 prefer using Medimix Soap. 80 prefer Hamam soap and Lux soap, 50 prefer Lux soap and Medimix Soap and 30 prefer Hamam soap and Medimix Soap. Everyone in the locality use at least one of the three soaps.

17. How many people use all the three soaps?
a) 30   **b)** 20   c) 40   d) 31

18. How many people use exactly one soap?
a) 240   b) 155   c) 169   d) 340

19. How many people use only Medimix?
a) 68   b) 67   **c)** 90   d) 69

20. How many people use Hamam but not Medimix?
a) 160   **b)** 140   c) 150   d) 20