SCIR NET General Aptitude Mathematical Science PYP Held on June 2023 Shift-2

Q1. A and B have in their collection, coins of Re. 1. Rs. 2, Rs. 5 and Rs. 10 in the ratio 3:2:2:1 and 4:3:2:1, respectively. The total number of coins with each of them is equal. If the value of coins with A is Rs. 270/-, what is the value of the coins (in Rs) with B?
(a) 213
(b) 240
(c) 275
(d) 282

Q2. If the speed of a train is increased by 20%, its travel time between two stations reduces by 2 hrs. If its speed is decreased by 20%, the travel time increases by 3 hrs. What is the normal duration of travel (in hrs)?
(a) 11.5
(b) 12.0
(c) 13.2
(d) 14.0

Q3. Person A tells the truth 30% of the times and B tells the truth 40% of the times, independently. What is the minimum probability that they would contradict each other?
(a) 0.18
(b) 0.42
(c) 0.46
(d) 0.50

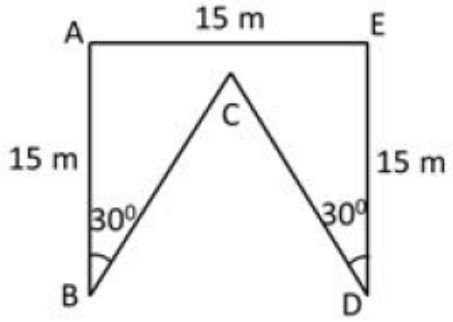
Q4. The standard deviation of data $x_1, x_2, x_3, \ldots\ldots x_n$ is σ (σ > 0). Then the standard deviation of data $3x_1 + 2, 3x_2 + 2, 3x_3 + 2, \ldots\ldots 3x_n + 2$ is
(a) 3 σ
(b) σ
(c) 3σ + 2
(d) 9 σ

Q5. A device needs 4 batteries to run. Each battery runs for 2 days. If there are a total of 6 batteries available, what is the maximum number of days for which the device can be run by strategically replacing the batteries till all the batteries are completely drained of power?
(a) 2
(b) 3
(c) 4
(d) 5

Q6. The difference of the squares of two distinct two-digit numbers with one being obtained by reversing the digits of the other is always divisible by
(a) 4
(b) 6
(c) 10
(d) 11

Q7. A person takes loan of Rs. 1,50,000 at a compound interest rate of 10% per annum. If the loan is repaid at the end of the 3rd year, what is the total interest paid? 1.45000
(b) 82600
(c) 94600
(d) 49650

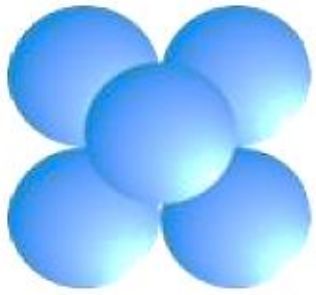
Q8. The figure shows map of a field bounded by ABCDE. If AB and DE are perpendicular to AE, then the perimeter of the field is



(a) 70 m
(b) 75 m
(c) 80 m
(d) 85 m

Q9. The ratio of ages of a mother and daughter is 14:1 at present. After four years, the ratio of their ages will be 16:3. What was the age of mother when the daughter was born?
(a) 26
(b) 28
(c) 30
(d) 32

Q10. Five identical incompressible spheres of radius 1 unit are stacked in a pyramidal form as shown in the figure. The height of the structure is

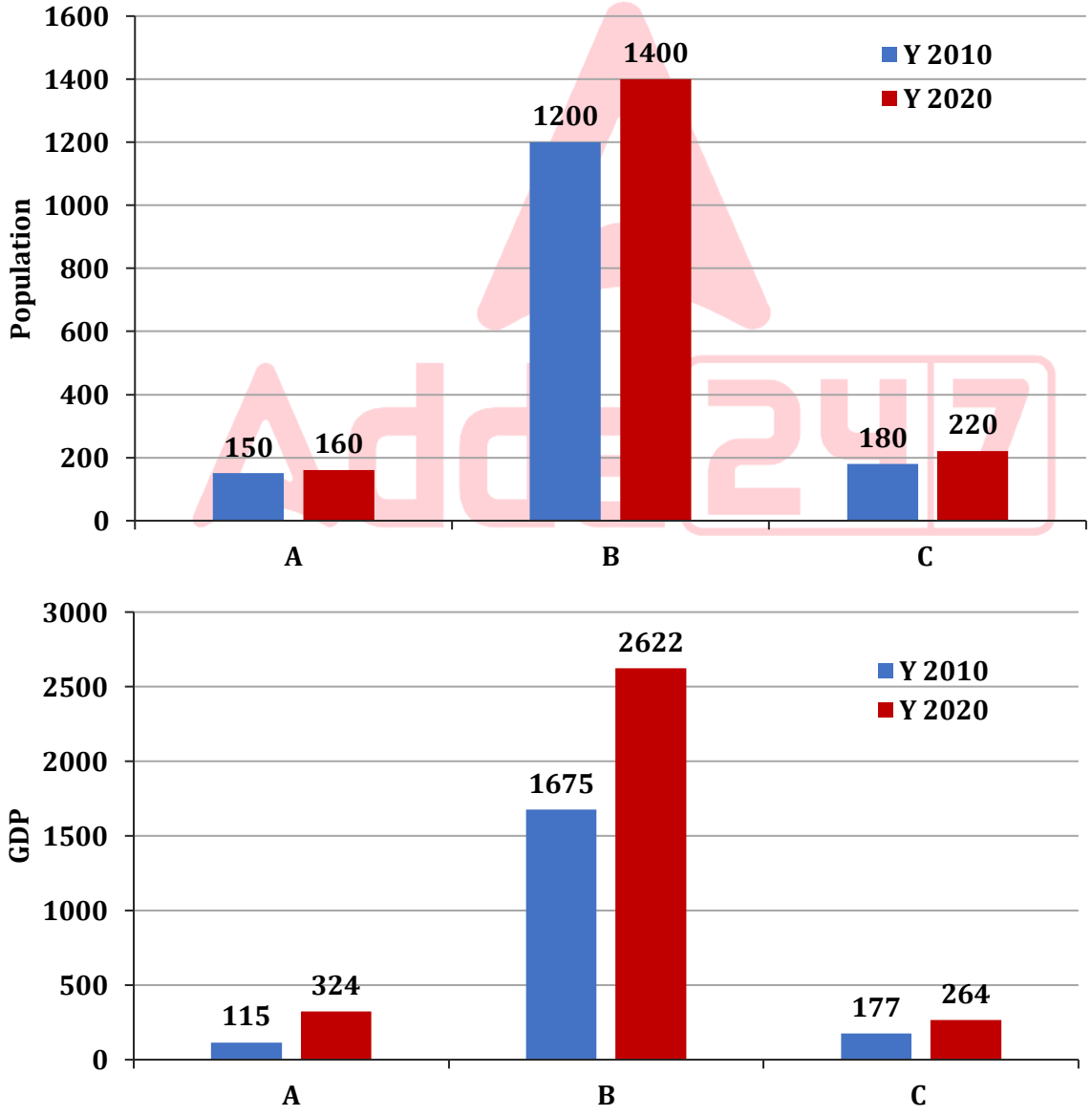


Top view

(a) $2 + \sqrt{2}$
(b) $2 + \sqrt{3}$
(c) $2 + 2\sqrt{2/3}$
(d) 3

Q11. In an assembly election, parties A, B, C, D and E won 30, 25, 20, 10 and 4 seats, respectively; whereas independents won 9 seats. Based on this data, which of the following statements must be INCORRECT?
(a) No party has majority.
(b) A and C together can form the government.
(c) A and D with the support of independents get the majority.
(d) An MLA from E can become Chief Minister.

Q12. The populations and gross domestic products (GDP) in billion USD of three countries A, B and C in the years 2010 and 2020 are shown in the two figures below.



In terms of increase in per capita GDP from 2010-2020, their ranking from high to low is
(a) A, B, C
(b) B. A, C
(c) B, C, A
(d) C, A, B,

Q13. Consider the following paragraph: THE ABILITY TO REASON ACCURATELY IS VERY IMPORTANT, AS IS THE ABILITY TO COUNT. AS AN EXERCISE IN BOTH, LET US COUNT HOW MANY TIMES THE LETTER "E" OCCURS IN THIS PARAGRAPH. THE CORRECT COUNT IS Which option when put in the blank in the above paragraph will make the final sentence accurate?
(a) SIXTEEN
(b) SEVENTEEN
(c) EIGHTEEN
(d) NINETEEN

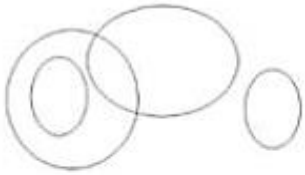
Q14. Two datasets A and B have the same mean. Which of the following MUST be true?
(a) Sum of the observations in A = Sum of the observations in B.
(b) Mean of the squares of the observations in A = Mean of the squares of the observations in B.
(c) If the two datasets are combined, then the mean of the combined dataset = mean of A + mean of B.
(d) If the two datasets are combined, then the mean of the combined dataset = mean of A.

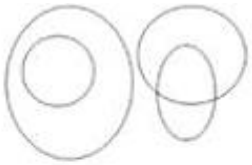
Q15. In a meeting of 45 people, there are 40 people who know one another and the remaining know no one. People who know each other only hug, whereas those who do not know each other only shake hands. How many handshakes occur in this meeting?
(a) 225
(b) 10
(c) 210
(d) 200

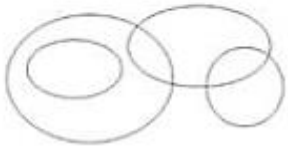
Q16. In a group of 7 people, 4 have exactly one sibling and 3 have exactly two siblings. Two people selected at random from the group, what is the probability that they are NOT siblings?
(a) 5/21
(b) 16/21
(c) 3/7
(d) 4/7

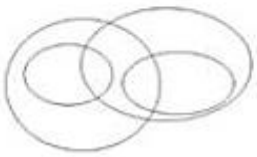
Q17. On a spherical globe of radius 10 units, the distance between A and B is 25 units. If it is uniformly expanded to a globe of radius 50 units, the distance between them in the same units would be
(a) 75
(b) 125
(c) 150
(d) 625

Q18. An appropriate diagram to depict the relationships between the categories INSECTS, BIRDS, EXTINCT ANIMALS and PEACOCKS is

A. 

B. 

C. 

D. 

(a) A
(b) B
(c) C
(d) D

Q19. A boy can escape through a window of size at least 4 feet. The 28 windows of a house are of sizes 2, 3, 4 or 5 feet and their numbers are proportional to their sizes. The number of windows available for the boy to escape through is
(a) 2
(b) 9
(c) 10
(d) 18

Q20. In an examination containing 10 questions, each correct answer is awarded 2 marks, each incorrect answer is awarded-1 and each unattempted question is awarded zero. Which of the following CANNOT be a possible score in the examination?
(a) -9
(b) -7
(c) 17
(d)19