

**SCIR NET General Aptitude Mathematical Science PYP Held on July 2024 Shift-1**

**PART A**

**Q1.** On a one-way road, to demarcate 4 lanes, line segments of 3.5 m length are painted with gaps of 3.5 m along the length of the road. What is the total length of the painted lines (in m) over a 350 m stretch of the road?

- (a) 300
- (b) 400
- (c) 525
- (d) 700

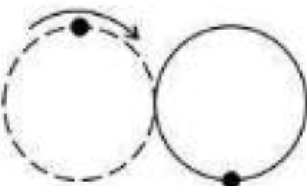
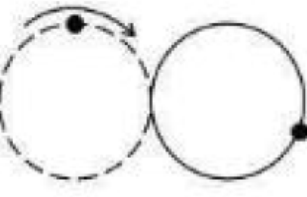
**Q3.** In a class of 30 students, those with roll numbers 1 to 20 secure an average of 72% marks, while those with roll numbers 11 to 30 secure an average of 75% marks. If the average marks of the entire class are 70%, what is the average marks of roll numbers 11 to 20 (in percent)?

- (a) 68
- (b) 74
- (c) 78
- (d) 84

**Q4.** A ring is rolling along a straight track as shown. The topmost point of the ring is marked.




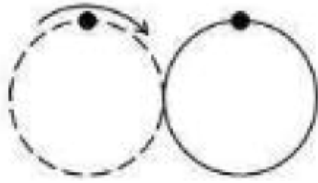
Which of the diagrams shows a possible position of the ring at a later time, relative to the original position (shown by dashed circle)?

- A. 
- B. 

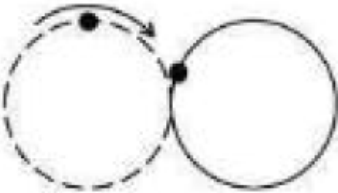
**Test Prime**

ALL EXAMS,  
ONE SUBSCRIPTION.





C.



D.

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

**Q5.** Among finches males and females have one of the three colours - Red, Blue or Yellow - on their head. During the mating season, males and females pair up randomly. For a large population of finches with 50% red, 30% blue and 20% yellow coloured individuals among both males and females, what is the expected number of pairings between red males and yellow females if the total number of pairs formed is 10000?

- (a) 2500
- (b) 1500
- (c) 1000
- (d) 600

**Q6.** In a district, every second teacher who teaches chemistry also teaches physics and every third teacher who teaches physics also teaches chemistry. The ratio of teachers who only teach chemistry to those who only teach physics is

- (a) 3:2
- (b) 1:2
- (c) 2:3
- (d) 2:1

**Q7.** The son was born when his mother was 28 years old. The father is older to the mother by 4 years. If the current ages of the father and mother are in the ratio 9:8, what is the current age (in years) of the son?

- (a) 2
- (b) 3
- (c) 4
- (d) 5

**Q8.** By selling two items at the same price, a person gains 20% on one item and loses 20% on the other. Then over all

- (a) he neither loses nor gains.
- (b) he loses 5%.
- (c) he loses 4%.
- (d) he gains 4%.

**Q9.** An experiment consists of tossing four fair coins independently. The outcome of the experiment is considered favourable, if the number of heads is greater than the number of tails. The probability of a favourable outcome from a single experiment is

- (a)  $1/2$
- (b)  $3/16$
- (c)  $5/16$
- (d)  $3/4$

**Q10.** Rajesh went to Sunil's house situated 1km North-East of his house. From there, he went to Arjun's house that is situated 707 m South of Sunil's house. What is the distance between Rajesh's current location and his house (to the nearest metre)?

- (a) 800 m
- (b) 600 m
- (c) 707 m
- (d) 1000 m

**Q11.** The diagrams show the distribution of trees in two forest patches A and B. Each patch is divided into smaller "quadrats". The number of trees in each quadrat is shown. Which one of the following statements about the means ( $\mu$ ) and standard deviations ( $\sigma$ ) of the numbers of trees in the two patches is true?

**Forest Patch A**

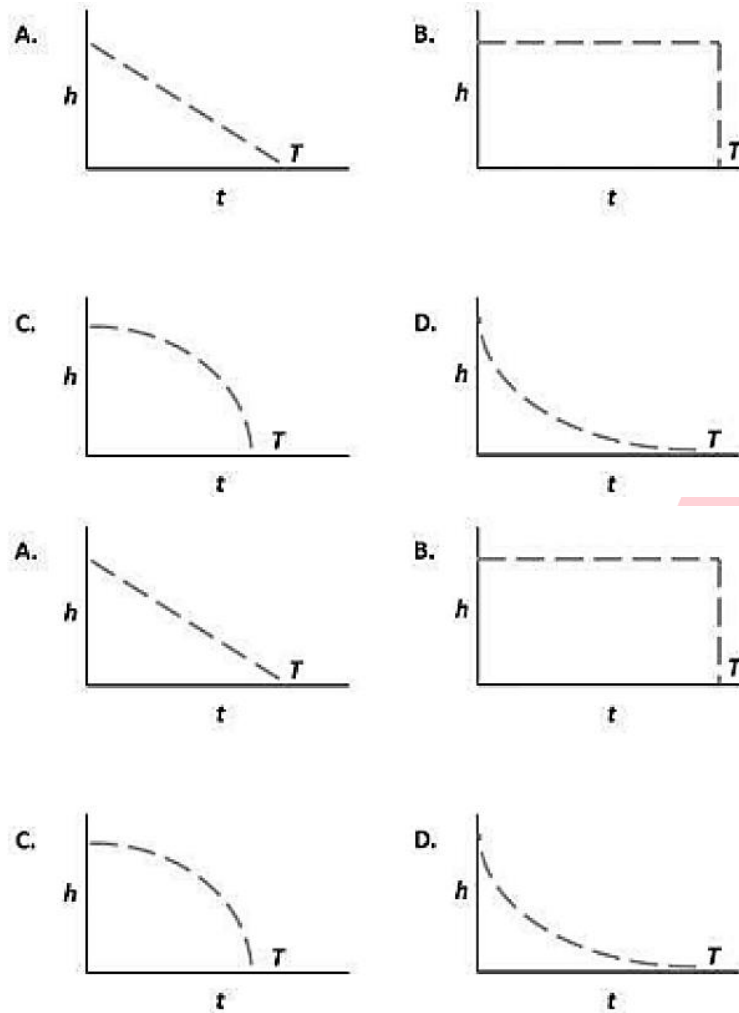
1	1	1	1	1
1	1	1	1	1
1	1	1	1	1
1	1	1	1	1
1	1	1	1	1

**Forest Patch B**

2	0	0	0	0
0	0	0	0	0
0	0	0	7	0
0	10	0	0	0
0	0	0	0	6

- (a)  $\mu(A) = \mu(B)$ ,  $\sigma(A) = \sigma(B)$
- (b)  $\mu(A) > \mu(B)$ ,  $\sigma(A) > \sigma(B)$
- (c)  $\mu(A) = \mu(B)$ ,  $\sigma(A) < \sigma(B)$
- (d)  $\mu(A) < \mu(B)$ ,  $\sigma(A) < \sigma(B)$

**Q12.** A cylindrical container has a tiny hole at the bottom. The container is initially filled to its brim with water. If  $T$  is the time taken for it to be completely emptied, the graph of height of the water column as a function of time is closest to



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

**Q13.** What would be the minimum number of notes for Rs 4849 if notes are available only in denominations of Rs 2, 5, 20, 50, 500?

- (a) 19  
(b) 20  
(c) 21  
(d) 22

**Q14.** An athlete running on a track falls short of the finish line by 10 m when she runs at a constant speed for a given time. If she increases her speed by 20%, she overshoots by 20 m in the same time. What is the length of the track?

- (a) 134 m
- (b) 156 m
- (c) 160 m
- (d) 164 m

**Q15.** The length of bristle mouth fish is uniformly distributed between 2 and 4 inches. If a fisherman randomly catches 5 bristle mouth fishes, what is the probability that at least one of them will be 3 inches or longer?

- (a) 0.03125
- (b) 0.15625
- (c) 0.84375
- (d) 0.96875

**Q16.** Out of a class of 100 students who can speak at least one of English or Hindi, 41 students can speak English. 21 students can speak both English and Hindi. How many students can speak Hindi?

- (a) 58
- (b) 80
- (c) 59
- (d) 38

**Q17.** In a class, among the boys B is taller than 10 boys, but shorter than 13 others. Among girls, G is taller than 6 girls, but shorter than 8 others. Two boys and three girls are shorter than B, but taller than G. If no two persons have the same height, then in the entire class, B is

- (a) taller than 21, but shorter than 18 others
- (b) taller than 20, but shorter than 18 others
- (c) taller than 20, but shorter than 19 others
- (d) taller than 19, but shorter than 19 others

**Q18.** A group of 540 persons is to be seated row wise such that the number of persons in each row is 4 less than in the previous row. Which of the following number of rows is not possible?

- (a) 5
- (b) 6
- (c) 8
- (d) 9

**Q19.** The hypotenuse of a right triangle, whose sides are integers, is 17 cm. Its area in sq.cm is

- (a) not calculable due to insufficient data
- (b) 60
- (c) 68
- (d) 225

**Q20.** Choose the best alternative:

CURRY is to SPICE as \_\_\_\_\_ is to COLOUR.

- (a) CANVAS
- (b) PAINTING
- (c) BRUSH
- (d) BRIGHTNESS

