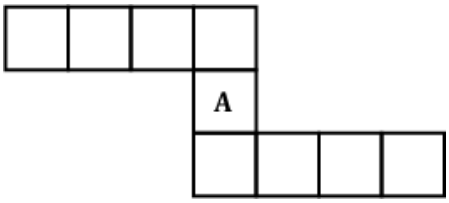
SCIR NET General Aptitude Physical Science PYP Held on Sep. 2022 Shift-1

Q1. The squares in the following sketch are filled with digits 1 to 9, without any repetition, such that the numbers in the two horizontal rows add up to 20 each. What number appears in the square labelled A in the vertical column?



(a) It cannot be ascertained in the absence of the sum of the numbers in the column
(b) 3
(c) 5
(d) 7

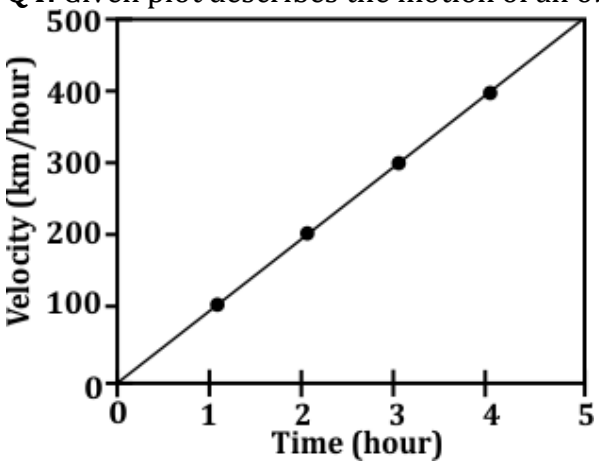
Q2. Sections A, B, C and D of a class have 24, 27, 30 and 36 students, respectively. One section has boys and girls who are seated alternately in three rows, such that the first and the last positions in each row are occupied by boys. Which section could this be?
(a) A
(b) B
(c) C
(d) D

Q3. In a round-robin tournament, after each team has played exactly four matches, the number of wins/ losses of 6 participating teams are as follows

Team	Win	Loss
A	4	0
B	0	4
C	3	1
D	2	2
E	0	4
F	3	1

Which of the two teams have certainly NOT played with each other?
(a) A and B
(b) C and F
(c) E and D
(d) B and E

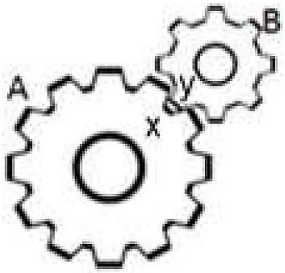
Q4. Given plot describes the motion of an object with time.



Which one of the following statements is CORRECT?
(a) The object is moving with a constant velocity.
(b) The object covers equal distance every hour.
(c) The object is accelerating.
(d) Velocity of the object doubles every hour.

Q5. If one letter each is drawn at random from the words CAUSE and EFFECT, the chance that they are the same is
(a) 1/30
(b) 1/11
(c) 1/10
(d) 2/11

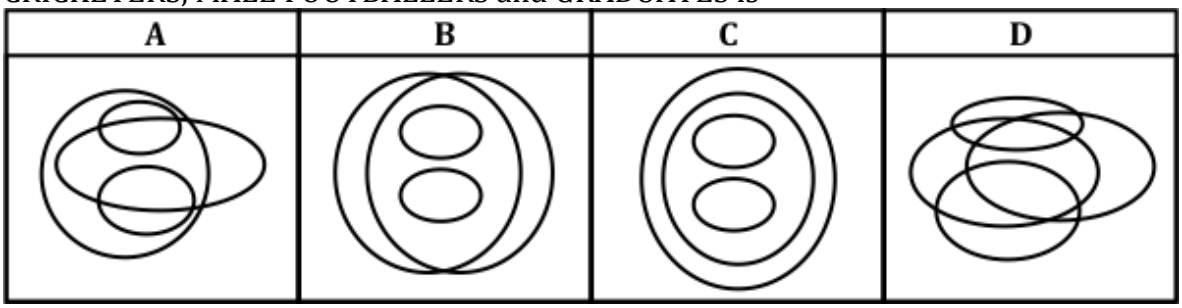
Q6. A vehicle has tyres of diameter 1 m connected by a shaft directly to gearwheel A which meshes with gearwheel B as shown in the diagram. A has 12 teeth and B has 8. If points x on A and y on B are initially in contact, they will again be in contact after the vehicle has travelled a distance (in meters)



(a) 2π
(b) 3π
(c) 4π
(d) 12π

Q7. A liar always lies and a non-liar, never. If in a group of n persons seated around a round-table everyone calls his/her left neighbor a liar, then
(a) all are liars.
(b) n must be even and every alternate person is a liar
(c) n must be odd and every alternate person is a liar
(d) n must be a prime

Q8. The correct pictorial representation of the relations among the categories PLAYERS, FEMALE CRICKETERS, MALE FOOTBALLERS and GRADUATES is



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

Q9. What is the product of the number of capital letters and the number of small letters of the English alphabet in the following text?
A4;={c8%$56((+B/;,.H&r]]](u];#~K@>83<??/STvx%^(d)L:/<-N347)))2;:$+}E$###[w]"..;/89
(a) 17
(b) 37
(c) 53
(d) 63

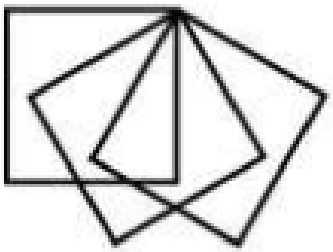
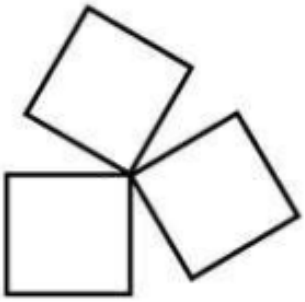
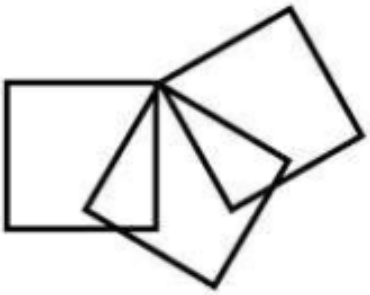
Q10. On a track of 200 m length, S runs from the starting point and R starts 20 m ahead of S at the same time. Both reach the end of the track at the same time. S runs at a uniform speed of 10 m/s. If R also runs at a uniform speed, what is R's speed (in m/s)?
(a) 9
(b) 10
(c) 12
(d) 8

Q11. A plant grows by 10% of its height every three months. If the plant's height today is 1 m, its height after one year is the closest to
(a) 1.10 m
(b) 1.21 m
(c) 1.33 m
(d) 1.46 m

Q12. Starting from the top of a page and pointing downward, an ant moves according to the following commands

Start
↓
{Repeat actions in curly brackets 3 times
Repeat actions in the box 4 times
[Move forward 100 units
↓
Turn right by 90 degrees]
Turn left by 30 degrees}

Of the following paths

A.		B.	
C.		D.	

Which is the correct path of the ant?

(a) A

(b) B

(c) C

(d) D

Q13. In a four-digit PIN, the third digit is the product of the first two digits and the fourth digit is zero. The number of such PINs is

(a) 42

(b) 41

(c) 40

(d) 39

Q14. After 12:00:00 the hour hand and minute hand of a clock will be perpendicular to each other for the first time at

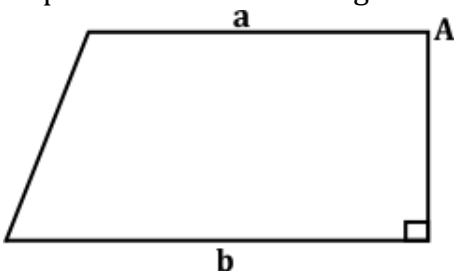
(a) 12:16:21

(b) 12:15:00

(c) 13:22:21

(d) 12:48:08

Q15. At what horizontal distance from A should a vertical line be drawn so as to divide the area of the trapezium shown in the figure into two equal parts ? (a and b are lengths of the parallel sides.)



(a) (a + b)/4
(b) (a + b)/3
(c) (a + b)/2
(d) (2a + b)/2

Q16. I have a brother who is 4 years elder to me, and a sister who was 5 years old when my brother was born. When my sister was born, my father was 24 years old. My mother was 27 years old when I was born. How old (in years) were my father and mother, respectively, when my brother was born?
(a) 29 and 23
(b) 27 and 25
(c) 27 and 23
(d) 29 and 25

Q17. A boy has kites of which all but 9 are red, all but 9 are yellow, all but 9 are green, and all but 9 are blue. How many kites does he have?
(a) 12
(b) 15
(c) 9
(d) 18

Q18. Tokens numbered from 1 to 25 are mixed and one token is drawn randomly. What is the probability that the number on the token drawn is divisible either by 4 or by 6?
(a) 8/25
(b) 10/25
(c) 9/25
(d) 12/25

Q19. A beam of square cross-section is to be cut out of a wooden log. Assuming that the log is cylindrical, what approximately is the largest fraction of the wood by volume that can be fruitfully utilised as the beam?
(a) 49%
(b) 64%
(c) 71%
(d) 81%

Q20. How many rectangles are there in the given figure?

(a) 6
(b) 7
(c) 8
(d) 9