ASIAN UNIVERSITY FOR WOMEN

ADMISSION TEST SAMPLE PAPER

Mathematics Section
Total points: 45
Total time for this section: 45 Minutes

APPLICANT NAME:

APPLICANT COUNTRY:

APPLICANT ID:

DATE:

Section I

The goal of the maths puzzle "Sudoku" is to find the numbers from 1 to 9 that belong in all the empty spaces, so that:

a) Each number only appears one time in each row (left to right).
b) Each number only appears one time in each column (top to bottom).
c) Each number only appears one time in each of the **nine squares** (marked by the **thick lines**).

For this question, use these rules to find the number that fits in boxes A to E. Write your answers in the blanks below the "Sudoku" board. You score 3 marks for each correct answer.

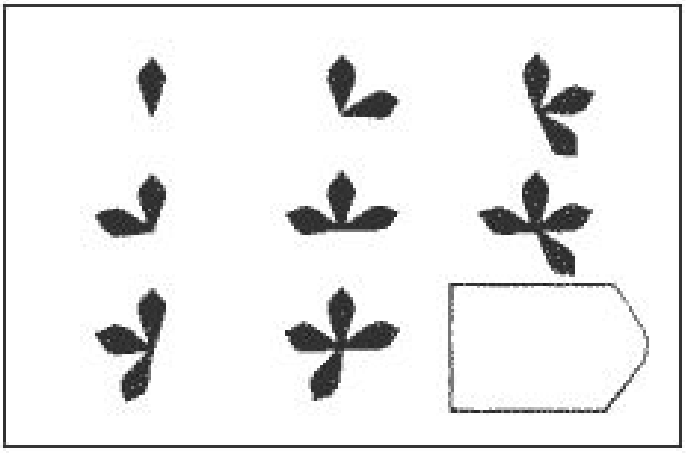
	1	6	D	2		3		
4		2	7		3	E		8
3					5			6
9	4			7	2	5	C	3
	7	5		3			9	4
	3	1						
8	B		1	5	A		6	
		9	2	8	4	7		
		4	3		6		8	

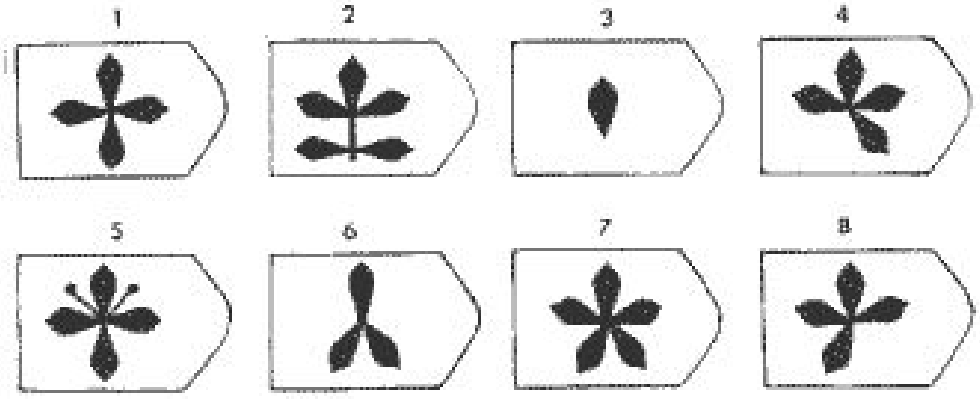
Space	A	B	C	D	E
Answer					

Section II

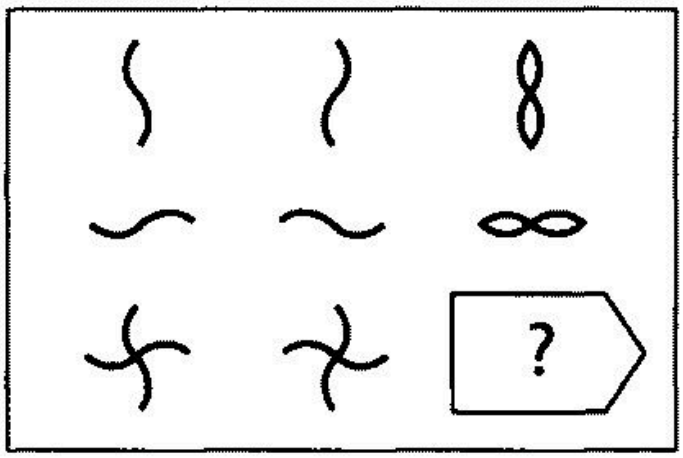
Please select the best match for each of the following figures. Each question carries 1.5 points. Circle or put an asterisk (*) next to the number of the choice you think is the best fit.

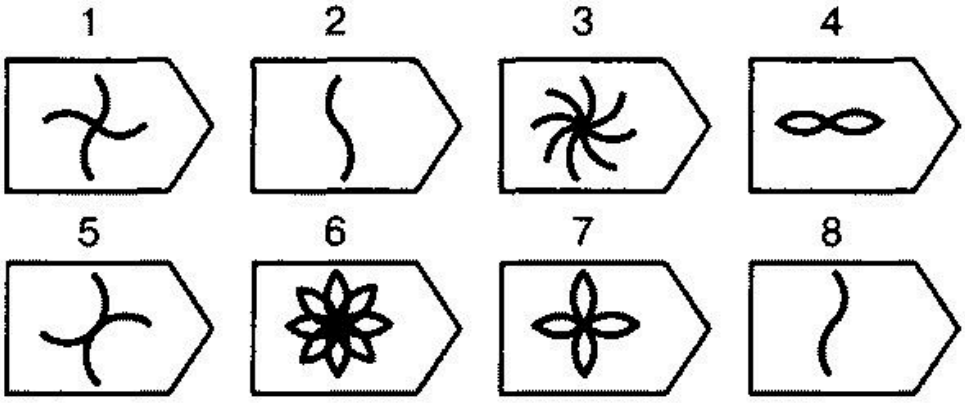
1.





2.





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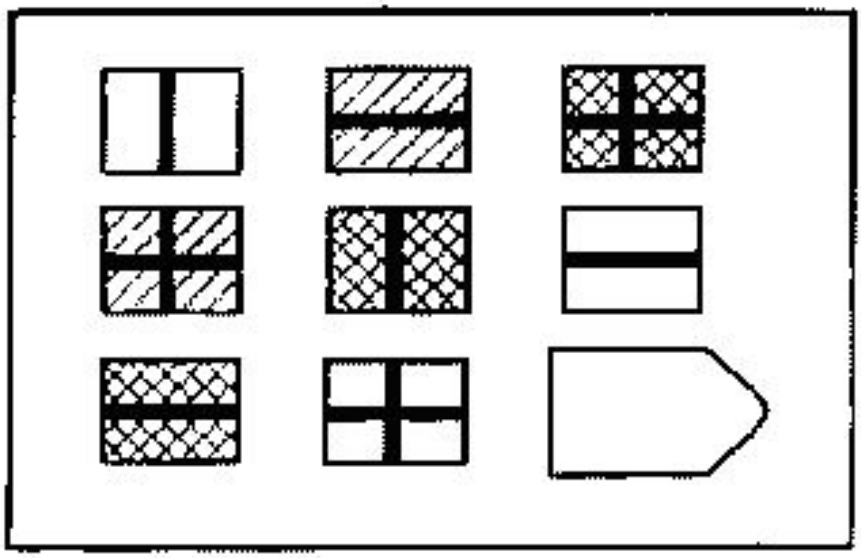
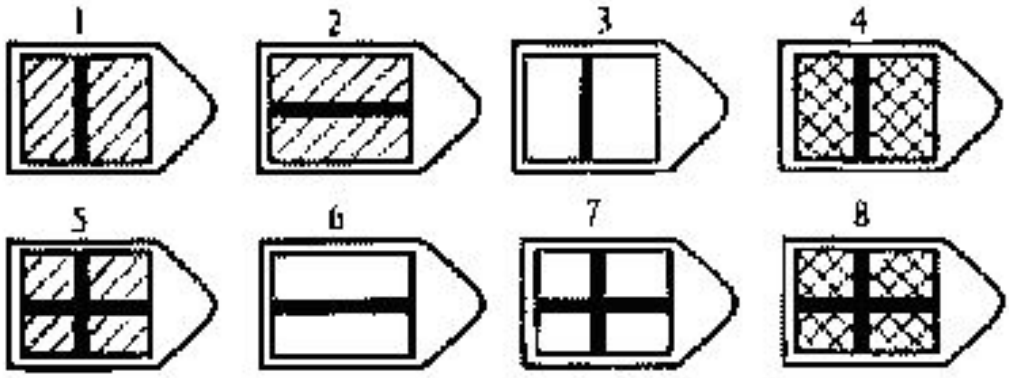
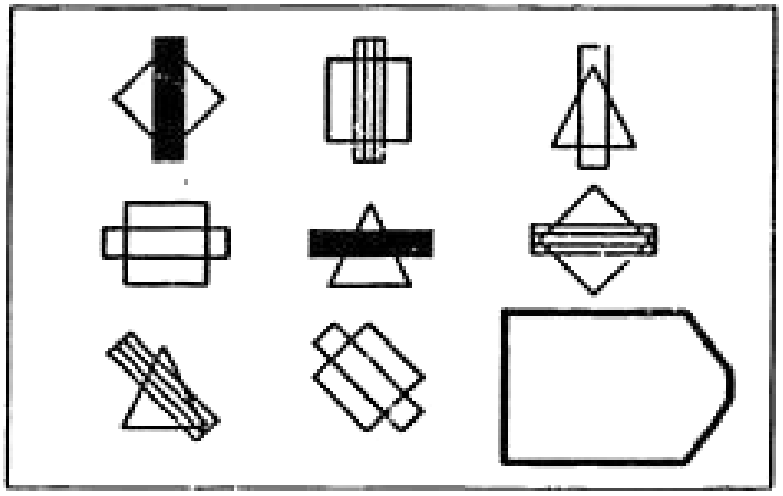
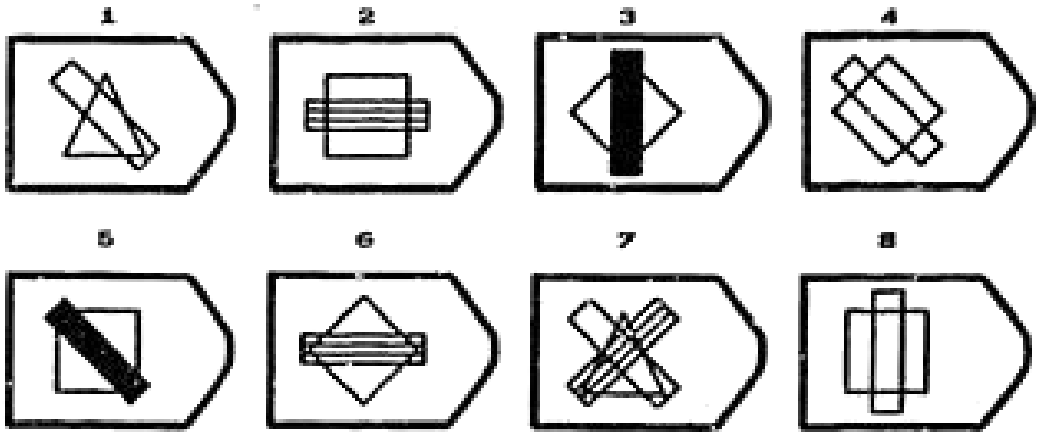


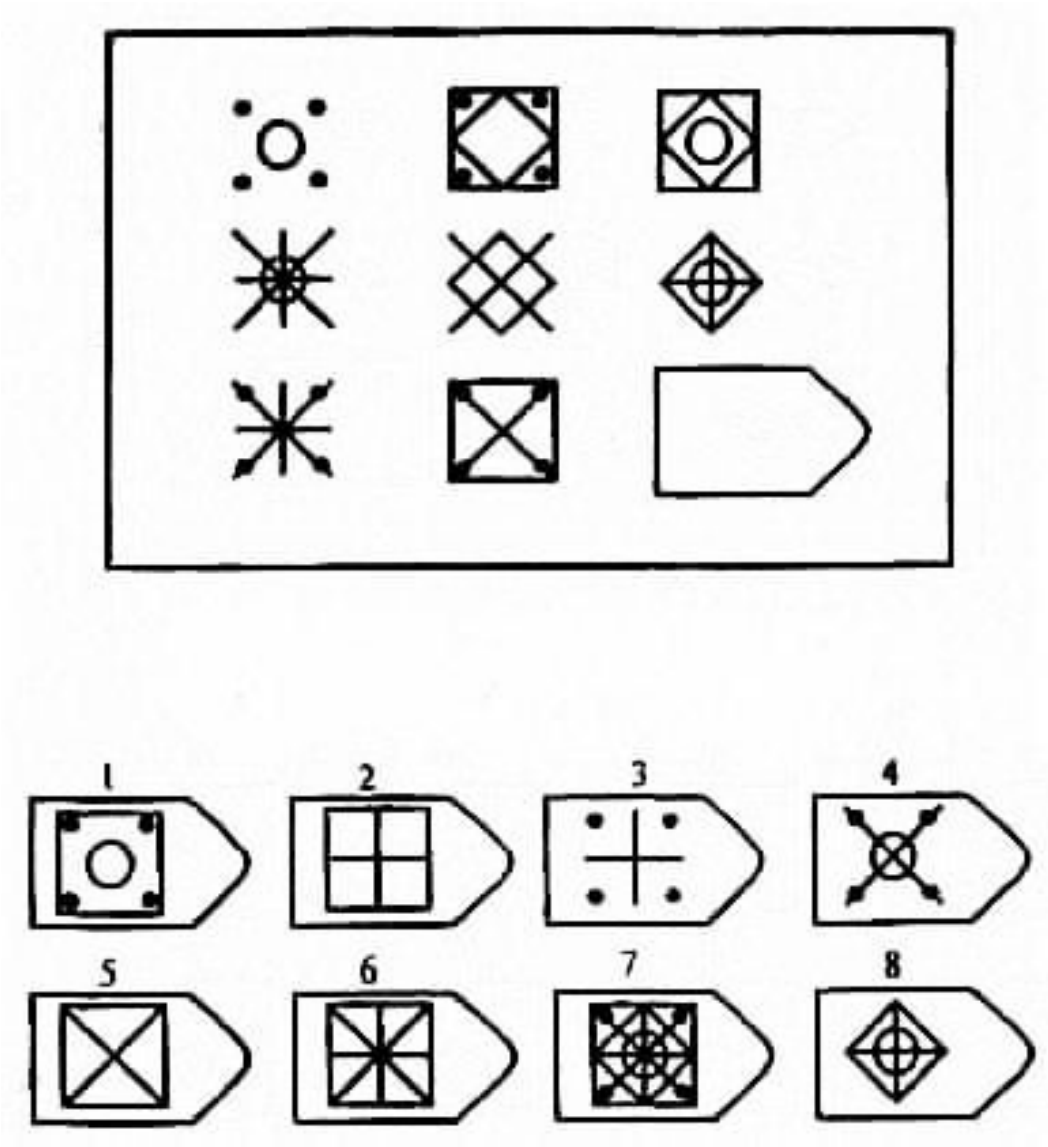


4.





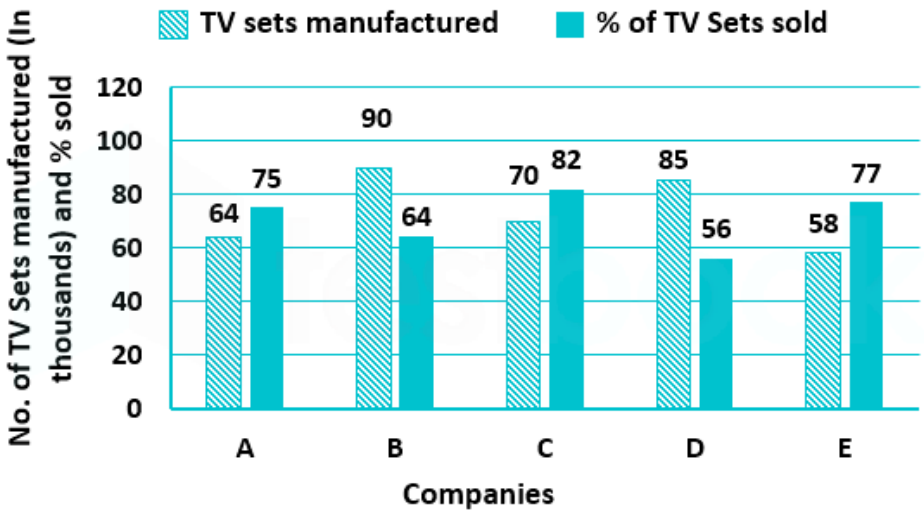
5.



Section III

Please answer the following multiple-choice questions. Each question carries 1.5 points.

6. The chart below illustrates the TV sets manufactured (in thousands) and the respective percentage of those TV sets sold by 5 different companies A, B, C, D and E in 2024.



How many more TV sets did Company C sell compared to Company A?

(A) 9400
(B) 5740
(C) 1320
(D) 6150
(E) 4480

7. If there are 1229 prime numbers among the first 10,000 positive integers, what percentage of these integers are prime numbers?

(A) 0.012%
(B) 0.123%
(C) 1.229%
(D) 12.29%
(E) 122.9%

8. What is the product of the LCM and GCF of 80 and 64?

(A) 4160
(B) 6340
(C) 5120
(D) 5460
(E) 6520

9. If $\frac{1}{x} < \frac{1}{y}$ and $x > 0$, which of the following are true?

I. $xy < 0$
II. $xy > 0$
III. $x - y > 0$

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) II and III only

10. Two lines are given by the equation -
Line$_1$: $(2k + 1)x - 3y + 4 = 0$
Line$_2$: $9x + (k - 2)y - 5 = 0$
If these two lines are perpendicular, what is the value of k?

(A) -½
(B) ½
(C) 2
(D) 1
(E) -1

11. For which values of x is $x^2 - 5x + 6$ negative?

(A) $x < 0$
(B) $0 < x < 2$
(C) $2 < x < 3$
(D) $3 < x < 6$
(E) $x > 6$

12. The lines given below intersect at the point where $x = 3$.
    L_1: $y = 2x + k$
    L_2: $y = mx - 4$
    If the intersection point lies on the line, $y = x + 5$, what is the value of $k + m$?

    (A) 2
    (B) 4
    (C) 6
    (D) 8
    (E) 10

13. A quadratic function has x-intercepts at -3 and 1, and a y-intercept at -3. Determine the coordinates of the vertex of the parabola

    (A) (1, -3)
    (B) (-1, -4)
    (C) (3, -1)
    (D) (-3, 1)
    (E) (-1, -3)

14. If $f(x) = 3x + 4$ and $g(x) = x^2 + 6$, find a such that $f(g(a)) = g(f(a))$

    (A) 1
    (B) 0
    (C) -4
    (D) 0 and -4
    (E) 1 and 2

15. Find the range of the function, $f(x) = |x^2 - 4x + 3|$

    (A) [0, 4]
    (B) [0, +∞)
    (C) [1, +∞)
    (D) (-∞, 0]
    (E) (-∞, +∞)