

Chapter - 5

Information Processing

Ex 5.1

Question 1.

Study and complete the following pattern.

(i) $1 \times 1 = 1$

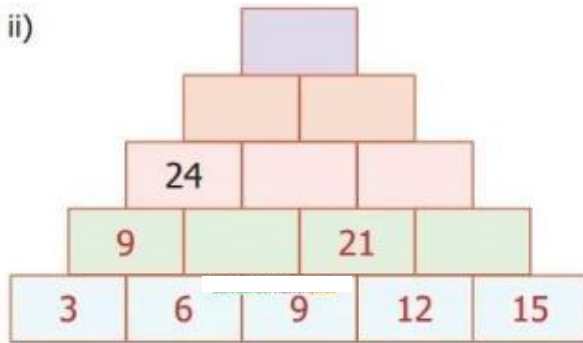
$11 \times 11 = 121$

$111 \times 111 = 12321$

$1111 \times 1111 = ?$

$11111 \times 11111 = ?$

ii)



Solution:

(i) 1234321, 123454321

(ii) 144, 60, 84, 36, 48, 15, 27

Question 2.

Find next three numbers in the following number patterns.

(i) 50, 51, 53, 56, 60.....

(ii) 77, 69, 61, 53,

(iii) 10, 20, 40, 80,...

(iv) $\frac{21}{33}, \frac{321}{444}, \frac{4321}{555}$

Solution:

i) The pattern generating these numbers is

$50, 50 + 1, 51 + 2, 53 + 3, 56 + 4, 60 + 5, 65 + 6, 71 + 7,$

$\therefore 50, 51, 53, 56, 60, 65, 71, 78, \dots$

\therefore The next three numbers will be 65, 71, 78

ii) The pattern generating these numbers is
 $77, 77 - 8, 69 - 8, 61 - 8, 53 - 8, 45 - 8, 37 - 8, 29$
 $77, 69, 61, 53, 45, 37, 29, 21,$
 \therefore The next three numbers will be 45, 37, 29.

iii) The pattern generating these numbers is
 $10, 10 + 10, 20 + 20, 40 + 40, 80 + 80, 160 + 160, 320 + 320, \dots$
 $10, 20, 40, 80, 160, 320, 640, \dots$
 \therefore The next three numbers will be 160, 320, 640.

(iv) $\frac{54321}{66666}, \frac{654321}{777777}, \frac{7654321}{8888888}$

Question 3.

Consider the Fibonacci sequence 1, 1, 2, 3, 5, 8, 13, 21, 34, 55,.... Observe and complete the following table by understanding the number patterns? followed. After filling the table discuss the pattern followed in addition and subtraction, of the numbers of the sequence?

Steps	Pattern 1	Pattern 2
i)	$1+3 = 4$	$5 - 1 = 4$
ii)	$1+3+8 = \underline{\hspace{2cm}}$?
iii)	$1+3+8+21 = \underline{\hspace{2cm}}$?
iv)	?	?

Solution:

- (i) $12, 13 - 1 = 12$
(ii) $33, 34 - 1 = 33$
(iii) $1 + 3 + 8 + 21 + 55 = 88, 89 - 1 = 88$

Question 4.

Complete the following patterns.

i)

A	➤	∇	?
N	≥	N	?
W	?	M	?

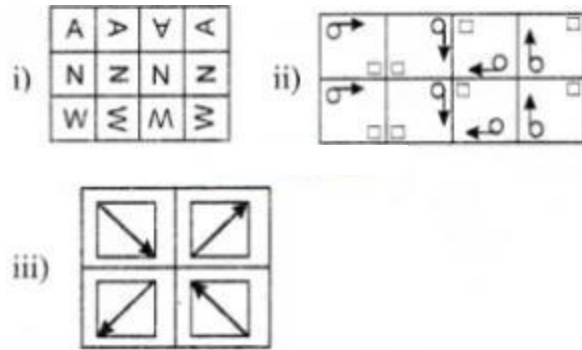
 ii)

		?	
		?	
?	?		?

 iii)

	?

Solution:



Question 5.

Find the HCF of the following pair of numbers by Euclid's game

(i) 25 and 35

(ii) 36 and 12

(iii) 15 and 29

Solution:

(i) HCF of (25, 35 - 25)

$$25 = 5 \times 5$$

$$10 = 2 \times 5$$

$$\text{HCF of } (25, 10) = 5$$

(ii) HCF of (36, 36 - 12)

$$36 = 2 \times 2 \times 3 \times 3$$

$$24 = 2 \times 2 \times 2 \times 3$$

$$\text{HCF of } (36, 24) = 2 \times 2 \times 3 = 12$$

(iii) HCF of (15, 29 - 15)

$$15 = 3 \times 5 \times 1$$

$$14 = 2 \times 7 \times 1$$

$$\text{HCF of } (15, 14) = 1$$

Question 6.

Find HCF of 48 and 28. Also find the HCF of 48 and the number obtained by finding their difference.

Solution:

HCF of 48 and 28

$$48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$28 = 2 \times 2 \times 7$$

$$\text{HCF of } (48, 28) = 2 \times 2 = 4$$

HCF of (48, 48 - 28)

$$48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$20 = 2 \times 2 \times 5$$

$$\text{HCF of } (48, 20) = 4$$

Question 7.

Give instructions to fill in a bank withdrawal form issued in a bank.

Solution:

- The name should be written in capital letters from left to right.
- Write the date of withdrawal on the right top corner of the form.
- Write the amount (in words) to be withdrawn in the space provided.
- Write the amount (in figures) to be withdrawn in the box provided.
- Put your signature at the right bottom above the 'signature of the depositor'.

Question 8.

Arrange the name of your classmates alphabetically.

Solution:

Ajay . S	Jothipriya . B
Anbu . T	Kannan . L
Balamurugan . M	Lakshmi . S
Darshan . S	Muthu . N
Elizabeth . N	Nagaraj . A
Franklin . P	Pattu . R
Godwin . A	Sethu . M
Harsha Varthan . M	Thangam . R
Immanuel . S	Velu . S

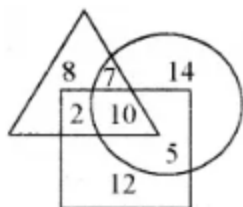
Question 9.

Follow and execute the instructions given below.



- Write the number 10 in the place common to the three figures
- Write the number 5 in the place common for square and circle only.
- Write the number 7 in the place common for triangle and circle only.
- Write the number 2 in the place common for triangle and square only.
- Write the numbers 12, 14, and 8 only in square, circle, and triangle respectively.

Solution:



Question 10.

Fill in the following information

Candidate's EMIS No

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

1. Name of the candidate in Capital Letters followed by initial leaving one box blank. (Do not write Miss/Master)

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

2. Class Date of birth

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Date Month Year

3. Father's name in Capital Letters followed by initial leaving one box blank. (Do not write Mr./Dr./Prof)

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

4. Mother's Name in Capital Letters followed by initial leaving one box blank. (Do not write Mrs./Dr./Prof)

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

5. Sex (Put ✓ mark)

--	--

Male Female

6. Area to which candidates resides. (Put ✓ mark)

--	--

Rural Urban

Solution:

Candidate's EMIS No

1	4	5	6	8	9	3	2	1	0	3	2	5	8	1	4
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

1. Name of the candidate in Capital Letters followed by initial leaving one box blank. (Do not write Miss / Master)

R	A	J	A	.	P														
---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--

2. Class Date

6	1	6	0	4	1	9	9	6
---	---	---	---	---	---	---	---	---

Date Month Year

3. Father's name in Capital Letters followed by initial leaving one box blank. (Do not write Mrs. / Dr. / Prof)

P	A	U	L	R	A	J	.	A											
---	---	---	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--	--

4. Mother's name in Capital Letters followed by initial leaving one box blank. (Do not write Mrs. / Dr. / Prof)

M	E	E	N	A	.	K													
---	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--

5. Sex (put (✓) mark)

✓	
---	--

Male Female

6. Area to which candidates resides. (Put (✓)mark)

	✓
--	---

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Objective Type Questions

Question 11.

The next term in the sequence 15, 17, 20, 22, 25, ... is

- (a) 28
- (b) 29
- (c) 27

Hint:

Add 2 and 3 alternatively

Solution:

- (c) 27

Question 12.

What will be the 25th letter in the pattern? ABCAABBCCAAABBBCCC,...

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

Solution:

- (a) B

Question 13.

The difference between 6th term add 5th term in the Fibonacci sequence is ____.

- (a) 6
- (b) 8
- (c) 5
- (d) 3

Solution:

- (d) 3

Question 14.

The 11th term in the Lucas sequence 1, 3, 4, 7, is

- (a) 199
- (b) 76
- (c) 123
- (d) 47

Solution:

- (a) 199

Question 15.

If the Highest Common Factor of 26 and 54 is 2, then HCF of 54 and 28 is

- (a) 26
- (b) 2
- (c) 54
- (d) 1

Hint: $\text{HCF}(54, 28) = \text{HCF}(28, 26) = 2$

Solution:

- (b) 2

Ex 5.2

Miscellaneous Practice Questions

Question 1.

Find HCF of 188 and 230 by Euclid's game.

Solution:

By Euclid's game $\text{HCF}(a, b) = \text{HCF}(a, a - b)$ if $a > b$.

Here $\text{HCF}(188, 230) = \text{HCF}(230, -188)$ because $230 > 188$

$= \text{HCF}(188, 42) = \text{HCF}(146, 42)$

$= \text{HCF}(104, 42) = \text{HCF}(62, 42)$

$= \text{HCF}(42, 20) = \text{HCF}(22, 20)$

$= \text{HCF}(20, 2) = \text{HCF}(18, 2) = 2$

$\therefore \text{HCF}(230, 188) = 2$

Question 2.

Write the numbers from 1 to 50. From that find the following.

- i) The numbers which are neither divisible by 2 nor 7.
- ii) The prime numbers between 25 and 40
- iii) All square numbers upto 50.

Solution:

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50.

i) The numbers neither divisible by 2 nor 7 are 9, 11, 13, 15, 17, 19, 23, 25, 27, 29, 31, 33, 37, 39, 41, 43, 45, 47.

ii) The prime numbers between 25 and 40 are 29, 31, 37.

iii) Square numbers upto 50 are 1, 4, 9, 16, 25, 36, 49

Question 3.

Complete the following pattern.

(i) $1 + 2 + 3 + 4 = 10$

$2 + 3 + 4 + 5 = 14$

$\underline{\hspace{1cm}} + 4 + 5 + 6 = \underline{\hspace{1cm}}$

$4 + 5 + 6 + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

(ii) $1 + 3 + 5 + 7 = 16$

$\underline{\hspace{1cm}} + 5 + 7 + 9 = 24$

$5 + 7 + 9 + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

$7 + 9 + \underline{\hspace{1cm}} + 13 = \underline{\hspace{1cm}}$

(iii) AB, DEF, HIJK, $\underline{\hspace{1cm}}$, STUVWX

(vi) 20, 19, 17, $\underline{\hspace{1cm}}$, 10, 5

Solution:

(i) 3, 18; 7, 22

(ii) 3; 11, 32; 11, 40

(iii) MNOPQ

(iv) 14

Question 4.

Complete the table by using the following instructions.

A	B	C
D	E	F
G	H	I

A : It is the 6th term in the Fibonacci sequence.

B : The predecessor of 2.

C : LCM of 2 and 3.

D : HCF of 6 and 20.

E : The reciprocal of $\frac{1}{5}$.

F : The opposite number of -7.

G : The first composite number.

H : Area of a square of side 3 cm.

I : The number of lines of symmetry of an equilateral triangle.

After completing the table, what do you observe? Discuss.

Solution:

A – 8, B – 1, C – 6, D – 2, E – 5, F – 7, G – 4, H – 9, I – 3

Question 5.

Assign the number for English alphabets as 1 for A, 2 for B upto 26 for Z. Find the meaning of

7	15	15	4	13	15	18	14	9	14	7
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Solution:

GOOD MORNING

Question 6.

Replace the letter with symbols as + for A, – for B, × for C, and ÷ for D. Find the answer for the pattern 4B3C5A30D2 by doing the given operations.

Solution:

Given the symbols + for A; – for B; × for C; ÷ for D .

∴ 4B3C5A30D2 becomes

$4 - 3 \times 5 + 30 \div 2$ Using BIDMAS rule

$4 - 3 \times 5 + 30 \div 2 = 4 - 3 \times 5 + 15$ [× done first]

$= 4 - 15 + 15$ [+ done second]

$= 4 - 0$ [+ done third]

$= 4$ [- done last]

Question 7.

Observe the pattern and find the word by hiding the Numbers 1 H 2 0 3 W, 4 A 5 R 6 E, 7 Y 8 0 9 U.

Solution:

HOW ARE YOU

Question 8.

Arrange the following from the eldest to the youngest. What do you get?

A - refers to parents	L - refers to you	F - refers to grandparents
I - refers to elder sister	Y - refers to younger brother	M - refers to uncle

Solution:

Arranging from eldest to the youngest we get

F – refers to grandparents

A – refers to parents
M – refers to an uncle
I – refers to elder sister
L – refers to me
Y – refers to the younger brother
So we get FAMILY

Challenge Problems

Question 9.

Prepare a daily time schedule for evening study at home.

Solution:

5.00 pm to 6.00 pm – Mathematics
6.0 pm to 7.00 pm – Science
7.0 pm to 8.00 pm – Social Science
8. pm to 9.00 pm – Dinner & Recreation
9. pm to 10.00 pm – Tamil and English

Question 10.

Observe the geometrical pattern and answer the following questions.

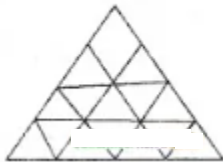


- Write down the number of sticks used in each iterative pattern,
- Draw the next figure in the pattern also find the total number of sticks used in it.

Solution:

(i) 3, 9, 18

ii) **30**



Question 11.

Find the HCF of 28, 35, 42 by Euclid's game.

Solution:

HCF of 28, 35, 42

HCF of (28, 35 – 28, 42 – 28)

$$28 = 2 \times 2 \times 7$$

$$7 = 1 \times 7$$

$$14 = 2 \times 7$$

$$\text{HCF of } (28, 7, 14) = 7$$

Question 12.

Follow the given instructions to fill your name in the OMR sheet.

1. The name should be written in capital letters from left to right.
2. One alphabet is to be entered in each box.
3. If any empty boxes are there at the end they should be left blank.
4. Ballpoint pen is to be used for shading the bubbles for the corresponding alphabets.

Candidate's Name																			
A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K
L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z

Solution:

Do your self.

Question 13.

Consider the Postal index number (PIN) written on the letters as follows: 604506; 604516; 604560; 604506; 604516; 604560; 604516; 604505; 604470; 604515; 604520; 604303; 604509; 604470. How the letters can be sorted as per Postal Index Numbers?

Solution:

604 is common for all postal index numbers. Compare the remaining 3 digits, 303, 470, 505, 506 (two) 509, 510. 515, 516 (Four), 520, 560 (two).