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FOUNDATION

Class: VIII, MATHEMATICS

6. DIVISIBILITY RULES

Teaching Task (Jee mains)

01 Numbers divisible by 7; 574, 630, 812
Ans: A, B, C

02 6240
Ans: A

03 3726, 5814
Ans: A, B

04 6450
Ans B

05 2134, 3452
Ans: A, B

06 Numbers divisible by 4 and 3 together
• $\text{LCM}\{3, 4\} = 12$
We have to count multiples of 12 up to 200
• $\left[\frac{200}{12}\right] = 16.66 \sim 16$
∴ so, total multiples = 16
Ans: D

07 $476\underline{a} \rightarrow$ is divisible by 4
 64 is divisible by 4 $\Rightarrow a=4$
Ans: A

08 $3A57$ is divisible by 3
 $\Rightarrow 3+A+5+7 = 15+A \rightarrow$ least value of $A = 0$
 $4578B$ is divisible by 9
 $4+5+7+8+B = 24+B \rightarrow$ least value of $B = 0$
∴ $A+B = 0$
Ans B

09. 3681 is divisible by 9

Ans: C ⁽²⁾

10. 3902

Ans: C

JEE ADVANCED

11. A) 3652 ✓ B) 7392 $= (7+9) - (3+2)$
 $= 16 - 5$
 $= 11$ ✓

C) 4851 $= (4+5) - (8+1) = 9 - 9 = 0$ ✓

D) 2347 $= (2+4) - (3+7) = 6 - 10 = -4$ X

Ans: A, B, C

12. A) 237 X B) 258 ✓ C) 180 ✓ D) 489 X

Ans: B, C

13. Statement I: 2436 $\rightarrow$ divisible by 2

$2+4+3+6 = 15 \rightarrow$ divisible by 3

Hence 2436 is divisible by 6 (True)

Statement II: 2436 $\rightarrow$ 36 is divisible by 4 (True)

Ans: A

14. Statement I: $abcd = ab24 \rightarrow$ divisible by 4 (True)

Ans: A

Statement II: Conceptual (True)

15. Assertion: 348 $\rightarrow$ Divisible by 2 (True)

Reason: Conceptual (True)

Ans: A

16. Assertion: $7452 = 7+4+5+2 = 18$, divisible by 3 (True)

Reason: Conceptual (True)

Ans: A

17. $1224 \rightarrow 1+2+2+4 = 9$, divisible by 3

$1224 \rightarrow$ 24 divisible by 4, Hence divisible by 12

Ans: D



18 ~~18~~ 423 $\rightarrow$ not divisible by 4

(3)

B) 8963 $\rightarrow$ not divisible by 4

C) 2812 $\rightarrow 2+8+1+2=13$, not divisible by 3

D) 2436 $\rightarrow 2+4+3+6=15$, divisible by 3

2436 $\rightarrow 36$ divisible by 4.

Hence divisible by 12

Ans D

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$$\begin{aligned} \text{A) } 46235 &= 4 - 6 + 2 - 3 + 5 \\ &= (4+2+5) - (6+3) \\ &= 11 - 9 = 2 \quad \times \end{aligned}$$

$$\begin{aligned} \text{B) } 918273 &= (9+8+7) - (1+2+3) \\ &= 24 - 6 \\ &= 18 \quad \times \end{aligned}$$

$$\begin{aligned} \text{C) } 66482 &= (6+4+2) - (6+8) \\ &= 12 - 14 \\ &= -2 \quad \times \end{aligned}$$

$$\begin{aligned} \text{D) } 74025 &= (7+0+5) - (4+2) \\ &= 12 - 6 \\ &= 6 \quad \times \end{aligned}$$

$\therefore$ No number is divisible by 11

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$$\begin{aligned} 74025 &= (7+0+5) - (4+2) \\ &= 12 - 6 \\ &= 6 \end{aligned}$$

Ans

21. $145 + 2 = 147$, divisible by 7

Ans: 2

22. $K + 7 + 4 = K + 11 \rightarrow$ least value of K is 1

Ans: 1

- 23 a) 336 $\rightarrow$ Divisible by 3, 8 not by 7 (P) (4)
 b) 252 $\rightarrow$ Divisible by 2, 3, 4, 6, 9 (S)
 c) 448 $\rightarrow$ Divisible by 6, 7, 8 (S)
 d) 504 $\rightarrow$ Divisible by 6, 7, 8 (S)

- 24 a) abc $\rightarrow$ 578 $\rightarrow$ divisible by 2 (S)
 b) bcd $\rightarrow$ 789 $\rightarrow$ divisible by 3 (P)
 c) cda $\rightarrow$ 895 $\rightarrow$ divisible by 5 (S)
 d) dab $\rightarrow$ 957 $\rightarrow$ divisible by 3 (P)
 Ans: S, P, S, P

LEARNERS TASK (CUES)

01.	Conceptual	Ans: C
02.	Conceptual	Ans: A
03.	Conceptual	Ans: C
04.	Conceptual	Ans: C
05.	Conceptual	Ans: C
06.	112233	Ans: C
07.	Conceptual	Ans: B
08.	Conceptual	Ans: C
09.	111111 = (1+1+1) - (1+1+1) = 3-3=0, divisible by 11 Ans: D	
10.	3940 $\rightarrow$ not divisible by 8	Ans: C

JEE MAINS LEVEL

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01.	B) $5826 \rightarrow$ divisible by 2	Ans. B
02.	$7452 \rightarrow 7+4+5+2 = 18$ divisible by 3	Ans. B
03.	$9212 \rightarrow 12$ is divisible by 4	Ans. A
04.	9565	Ans. C
05.	$2436 \rightarrow$ divisible by 2 $2+4+3+6 = 15$ divisible by 3	Ans. B
06.	A) $1284 \rightarrow 1+2+8+4 = 15 \checkmark$ B) $3510 \rightarrow 3+5+1+0 = 9 \checkmark$ C) $4328 \rightarrow 4+3+2+8 = 17 \times$ D) $7301 \rightarrow 7+3+0+1 = 11 \times$	Ans. A, B
07.	$16335x \rightarrow 1+6+3+3+5+x$ $\rightarrow 18+x \rightarrow$ least value of $x=0$	Ans. C
08.	A) $237 \rightarrow 2+3+7 = 12 \times$ B) $1277 \rightarrow 1+2+7+7 = 17 \times$ C) $1377 \rightarrow 1+3+7+7 = 18 \checkmark$ D) $5327 \rightarrow 5+3+2+7 = 17 \times$	Ans. C
09.	A) $3448 = 3+4+4+8 = 19$, not divisible by 3	Ans. B
10.	c) 1111	Ans. C

11.	1234, 148,	Ans: A, B
12	A) $1236 \rightarrow$ divisible by 2 $1+2+3+6=12$, divisible by 3 ☒ D) $318 \rightarrow$ divisible by 2 $3+1+8=12$, divisible by 3	Ans: A, D
13.	<u>statement I:</u> $4248 \rightarrow 48$ is divisible by 4 (True) <u>statement II:</u> Conceptual (True)	Ans: A
14	<u>statement I:</u> $3652 \rightarrow (3+5) - (6+2) = 8-8=0$, Divisible by 11 (True) <u>statement II:</u> 3,652 is divisible by 5 (false)	Ans: C
15	<u>Assertion:</u> 6450 is divisible by 10 (True) <u>Reason:</u> Conceptual (True)	Ans: A
16	<u>Assertion:</u> $3652 = (3+5) - (6+2) = 0$ Divisible by 11 (True) <u>Reason:</u> Conceptual (True)	Ans: A
17	No number is divisible by 6	Ans: D
18	A) $23036 \rightarrow 2+3+0+3+6=14$, not divisible by 3	Ans: A
19.		

19 A) $30877 = (3+8+7) - (0+7)$
 $= 18 - 7 = 11 \checkmark$

B) $42561 = (4+5+1) - (2+6)$
 $= 10 - 8 = 2X$

C) $75248 = (7+2+8) - (5+4)$
 $= 17 - 9 = 8X$

D) $63925 = (6+9+5) - (3+2)$
 $= 20 - 5 = 15X$

Ans: A

20 $42561 = (4+5+1) - (2+6) = 10 - 8 = 2$ Ans: A

21 Conceptual (True)

Ans: 104

22 105

Ans: 105

23 a) $39760 \rightarrow$ divisible by 2, 10, (q, r)

b) $53676 \rightarrow 2, 7 (r, s)$

c) $36920 \rightarrow 2, 5, (x, p)$

d) $569536 \rightarrow 2, 11 (x, t)$

24 a) $132 \rightarrow 6 (p)$

☒ b) $245 \rightarrow$ Divisible by 5, 7 (c)

c) $318 \rightarrow 2, 3, 6 (p, s)$

d) $411 \rightarrow 3$ not by 2 (r)

$\Rightarrow$ THE END $\Leftarrow$