FOUNDATION+

Class: VI. MATHEMATICS

5. DIVISIBILITY RULES

Teaching Task (Jee Mains)

01. $23A57 = 2+3+A+5+7$
$= 17+A$
If $A=1$, then $17+1=18$, which is divisible by 3
Ans: B

02. $35x7y1 = 3+5+x+7+y+1$
$= 16+(x+y)$
The least Sum of $x+y = 2$
So, that $16+2 = 18$, which is divisible by 3
Ans: A

03. $476a$ is divisible by 4
$\Rightarrow$ 6a should be divisible by 4
Here 'a' should be either 4 or 8 Ans: D

04. $57a68$ → Here 68 divisible by 4.
$\therefore$ a can take any single digit number Ans: A

05. $3A57 = 3+A+5+7 = 15+A$, divisible by 3
$\therefore$ least value of $A = 0$
$4578B = 4+5+7+8+B = 24+B$, divisible by 9.
$\therefore$ least value of $B = 3$
$\therefore A+B = 0+3 = 3$
Ans: D

06. A) $144 \rightarrow 1+4+4 = 9$, divisible by 3
$14\underline{4} \rightarrow 44$ divisible by 4
$1\underline{44} \rightarrow 4$ divisible by 2, Hence divisible by 6 ✓
B) Similarly 216, 324 are divisible by 3, 4, and 6
Ans: —

07. $\frac{6789}{11}$ → clearly Remainder = 2
Ans: C

08 | 972 is not divisible by 8 (2) Ans: D

09. | For a three disit, the possible sums of disits are 9 or 18 or 27 Ans D

10. | conceptual Ans: D

11. | 2 Ans: B

12. | Conceptual Ans: D

13. | Conceptual Ans: A

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14. A) 12345 = 1+2+3+4+5 = 15, divisible by 3 ✓
B) 453 = 4+5+3 = 12 ✓
C) 3690 = 3+6+9+0 = 18 ✓
D) 1235 = 1+2+3+5 = 11 ✗
Ans: A, B, C

15 A) 132 → divisible by 2, 3. Hence divisible by 6
32 divisible by 4,
B) similarly 264 and
C) 396 divisible by both 4 and 6
A, B, C
Ans: D

16 A) 162 → divisible by 2 and 9.
Similarly 234, are divisible by Both 2 ad 9.
Ans: A, B

17. A) Clearly 80, 64 are divisible by 8 but not 12
Ans: A, D

18 Statement I: abcdefgh ij [kl]
kl = 16 → which is divisible by 4 (True)
Statement II: Conceptual (True)
Ans. A

19. Statement I: Conceptual (True) (3)
Statement II: Conceptual (True) Ans: A

20 Assertion: Conceptual (True)
Reason: Conceptual (True) Ans. A

21 Assertion: Conceptual (True)
Reason: Conceptual (True) Ans. A

22 D) 320418 = 3+2+0+4+8 = 18, divisible by 9
Ans: D

23 A) 120360 → divisible by 2
1+2+0+3+6+0 = 12, which is divisible by 3
Ans: A

24 B) 112233 ⇒ 1+1+2+2+3+3 = 12, which is divisible by 3, not by 9.
C) 356850 ⇒ 3+5+6+8+5+0 = 27, which is divisible by both 3 and 9.
A) 46782 ⇒ 4+6+7+8+2 = 27, which is divisible by both 3 and 9. Ans: B

25 B) 430 → divisible by both 5 and 10 Ans: B

26 B) 452 → divisible by 2
4+5+2 = 11, not divisible by 3.
C) 815 → not divisible 2
A) 335 → not divisible by 2 Ans: —

27. LCM{4, 6} = 12 Ans: 12

28 LCM{8, 9} = 72 Ans: 72

29 LCM {7, 11} = 77 (4)
Smallest 3 digit number = 100
$\therefore \frac{100}{77} \approx 1.29 \approx 2$
∴ 77 × 2 = 154, is the required Answer Ans: 154

30 100 is divisible by 4 Ans: 100

31. 104 is divisible by 8 Ans: 104

32. a) 39760 → 2, 5, 10, 7 (P, Q, R, S)
b) 53676 → 2, 7 (R, S)
c) 36,920 → 2, 5, 10 (P, Q, R)
d) 569536 → 2, 11 (R, T)

33 a) 450 → P
b) 732 → Q
c) 728 → R
d) 84 → S
Ans P, Q, R, S

LEARNERS TASK (CUQ's)

01. 2 Ans: B

02 conceptual Ans: C

03 conceptual Ans: C

04. Conceptual Ans: C

05 No. Number is divisible by 8

06 340218 = 3 + 4 + 0 + 2 + 1 + 8 = 18, divisible by 9 Ans: D

07 78,436 → divisible by 2 Ans: A

08 conceptual ⑤ Ans: D

09 $901351 = 9-0+1-3+5-1 = 15-4 = 11$, which is divisible by 11 Ans: B

10. 508158 is divisible by 7.
since, last digit 8, now $2 \times 8 = 16$
$508158 - 16 = 50799$
$50799 - 18 = 50781$
proceed in this way Ans: B

11. 0 Ans: D

12 Conceptual Ans. D

13 Remainder = 0 Ans: A

14 11 Ans: A

15 112, 126, 154 are all divisible by 7 Ans. D

JEE MAINS LEVEL

01. $7x57y \rightarrow$ divisible by 6 $\rightarrow$ Divisible by 2 and 3
least value of $y = 0$
$\therefore xy = x \times 0 = 0$ Ans: C

02 c) $1668 = 1+6+6+8 = 21$, which is divisible by 3, but not by 9 Ans: C

03 B) 111111
$S_1 = 1+1+1 = 3$, $S_2 = 1+1+1 = 3$, $S_1 - S_2 = 0$ Ans. B

04. A) $46640 = 4+6+6+4+0 = 20$, Not divisible by 3
B) $7462\underline{8} \rightarrow$ not divisible by 5
C) $5969\underline{8} \rightarrow$ not divisible by 5 Ans: D

05 $7a6b5c \rightarrow$ divisible by 11

$S_1 = 7+6+5 = 18$, $S_2 = a+b+c$

$D = S_1 - S_2 = 0 \Rightarrow 18 - (a+b+c) = 0$

$\Rightarrow a+b+c = 18$

Ans: A

06 ~~xx~~nceptual

Ans: D

07 $xy \rightarrow y = 2x$

Ans.. A

08 c) 3940 → divisible by 4

3940 → divisible by 8

Ans: C

09 A) 8449

$S_1 = 8+4 = 12$, $S_2 = 4+9 = 13 = 13-1 = 12$

$\therefore 8449 - 1 = 8448$ is divisible by 11

Ans: A

10. Trial and Error method.

let the number be 9.

6)9(1
6
(3)

6)81(13
78
(3) → Remainder = 3

Ans.. D

Ans: C

11 Conceptual

12

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11)248(22
   22
   28
   22
   (6)
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∴ Remainder = 6

Ans.. D

13. D) 124 = 1+2+4 = 7, Not divisible by 3

Ans.. D

14 A) 18, is divisible by 6 and 9

Ans: A

15. 9) 137 (15
9
47
45
2

∴ Remainder = 2

Ans: C

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16. 12345678 → divisible by 8
Now, 1+2+3+4+5+6+7+8 = 36, which is divisible by 3 and 9

Ans: A, B, C

17. 99 is divisible by 3, 9, 11

Ans: A, B, C, D

18 Conceptual

Ans: A, C

19 $15 = 5 \times 3$

Ans: A

20 A) 162 → divisible by 2
162 ⇒ 1+6+2 = 9, divisible by 9
B) 23 similarly 234, 4122 are divisible by both 2 and 9

Ans: A, B, D

21. Statement I: Conceptual (True)
Statement II: Conceptual (True)

Ans: A

22 Statement I: Conceptual (True)
Statement II: Conceptual (True)

Ans: A

23. Assertion: Conceptual (True)
Reason: Conceptual (True)

Ans: A

24. Assertion: Conceptual (False)
Reason: Conceptual (True)

Ans: D

25 2358134 → Divisible by 2

Ans: C

26. A) 41384 → divisible by 8 (4) Ans: A

27. A) 35610 → divisible by 2

3+5+6+1+0 = 15, divisible by 3

∴ 35610 is divisible by 6

B) 124672 → divisible by 2

1+2+4+6+7+2 = 22, Not divisible by 3

Hence not divisible by 6.

C) 369276 → divisible by 2

3+6+9+2+7+6 = 33, divisible by 3.

∴ 369276 is divisible by 6 Ans: B

28 m = 6, n = 4

mn = 64, divisible by 4 Ans: C

29. D) 704 → divisible by 8 Ans. D

30. Conceptual Ans: B

31. 15 = L.C.M {3, 5} Ans: 15

32. L.C.M. of {3, 5, 7} = 105 Ans: 105

33. d54 ⇒ d+5+4 = d+9, d = 0 Ans. 0

34. lml

lkm

l+m

∴ The least sum of l+m = 0

Ans: 0

35. a) 578 → divisible by 2 (s)

b) 789 → 7+8+9 = 24, divisible by 3 (p)

c) 895 → divisible by 5 (q)

d) 957 → 9+5+7 = 21, divisible by 3 (p)

Ans: s, p, q, p

36 a) 2468 → Divisible by 2 (p)

b) 225 → divisible by both 3 and 5 (q)

c) 120 → divisible by 4 not by 8 (r)

d) 96 → divisible by 8 (s)

Ans: p, q, r, s

⟹ THE END ⟸