

Meghnad Sir

SIMPLE & COMPOUND INTERESTSyllabusReasoning

- Ineq
- sy

Quant

- CI-SI
- Ratio Prop
- Number sys
-

Q1. If the diff. b/w CI and SI for two years at 10% p.a. is Rs. 23.61 & if the principal and RofI is same for SI and CI then find the principal.

Q2. If the diff. b/w SI & C.I for three years @ 10% p.a. is Rs. 55.80 & if the principal and RofI is same for SI and CI, find the principal.

Q3. What is the CI on Rs. 4,000 @ 12% p.a. in second year?

Q4. In how many years on Rs 18,000 @ 4% p.a., the CI will be Rs. 1468.8.

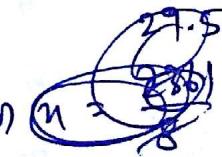
Solution

1.

$$\begin{array}{l}
 \text{SI} \xrightarrow{\text{Initially } X} \xrightarrow{\text{1 yr}} n + \frac{x}{10} \xrightarrow{\text{2 yrs}} \left(x + \frac{x}{10} \right) \left(x + \frac{x}{10} \right) \xrightarrow{\text{3 yrs}} \frac{3x}{10} \\
 \text{CI} \xrightarrow{X} \xrightarrow{\text{1 yr}} x + \frac{x}{10} \xrightarrow{\text{2 yrs}} \left(x + \frac{x}{10} \right) + \left(\frac{10x + x}{10} \right) \xrightarrow{\text{3 yrs}}
 \end{array}$$

$$\frac{12n}{100} + \frac{10n}{100} = 23.61$$

$$\Rightarrow n = 23.61$$



2) $3.1 \rightarrow 55.80$

2) $1 \rightarrow \frac{55.80}{3.1}$

3) $100 \Rightarrow \frac{55.80}{3.1} = 1800$

Diff for 2 yrs; $D_2 = P \left(\frac{R}{100} \right)^2$

" " 3 yrs; $D_3 = P R^2 \frac{(300+R)}{100^3}$

3) $12 + \boxed{12 + \frac{12 \times 12}{100}}$

$\text{eff interest for first year} = 12 + \boxed{12 + 1.44} \rightarrow \text{effective interest for second year}$
 $\Rightarrow = 13.44$

$\therefore \text{Interest for 2nd year} = 4,000 \times \frac{13.44}{100}$
 $= 537.6 \text{ rupees}$

4) $P = 18,000 \quad RI = 4\%$

Q5. what will be the CI on Rs. 20,000 @ 40% p.a. at the end of one year.

i) compounded half-yearly

ii) compounded quarterly

i) ~~$20,000 \times \left(1 + \frac{40}{200}\right)$~~

$$A = 20,000 \left(1 + \frac{40}{200}\right)^2$$

$$\Rightarrow A = 20,000 \left(1.20\right) \left(1.20\right)^2$$

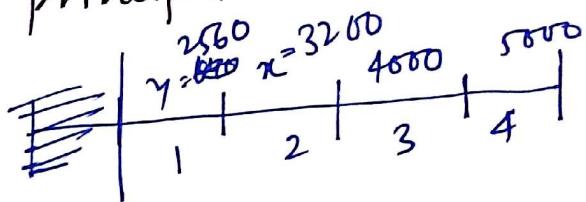
$$\Rightarrow A = 20,000 \times (1.44)$$

$$\Rightarrow A =$$

$$\begin{aligned} \therefore \text{Interest} &= 20,000 (1.96) - 20,000 \\ &= 20,000 \end{aligned}$$

Q6. If the CI in third year and fourth year are Rs 4000 & Rs 5000 respectively, what is the sum of compound interest in first two years? Also find the principal.

$$\text{Rate} = \frac{1600}{40000} = 25\%$$



$$\Rightarrow \frac{3200 - y}{y} = \frac{1}{4}$$

$$\frac{4000 - x}{x} = \frac{1}{4}$$

$$\Rightarrow x = 16000 - 4n$$

$$5n^2 = 16000$$

$$n = 3200$$

$$\Rightarrow y + 4y = 2560 \\ \Rightarrow y = 2560$$

$$\frac{2560 - z}{z} = \frac{1}{4}$$

$$\Rightarrow 5z = 10240$$

$$\Rightarrow z = 2048$$

$$\begin{array}{r} 2560 \\ 2048 \\ \hline 512 \end{array}$$

$$n+y = \underline{\underline{5760}} \quad \text{Ans}$$

$$\therefore 25\% \rightarrow 2560$$

$$\Rightarrow 100\% \rightarrow \frac{2560}{25} \times 100 \\ = 10240$$

Q7. If a sum becomes three times ^{at CI} in 7 yrs. In how many years it will be 81 times?

Ans \rightarrow 28 years

$$P \left(1 + \frac{R}{100}\right)^7 = 3P$$

$$\text{or, } \left(1 + \frac{R}{100}\right)^7 = 3$$

$$\text{or, } \left(\left(1 + \frac{R}{100}\right)^7\right)^4 = 3^4$$

$$\Rightarrow \left(1 + \frac{R}{100}\right)^{28} = 81$$

SDP

CALENDAR

23rd Aug, 2017

Wednesday

Questions :

1. Today is Thursday. The day after 59 days will be Monday.
2. If the third day of a month is Tuesday, what day it will be fourth day after 22nd of the month? Thursday
3. If the first day of the year (other than leap year) was Monday, which ^{day} was the fifth of December of that year?
4. If the day two days before yesterday was Monday, what day will fall on the day two days after tomorrow?
5. If 289 days before yesterday was Friday, then what day will be 386 days after tomorrow?
6. If 18th February 1996 was Tuesday, then what was the day on 18th March 1999?

Solutions :

1. $\frac{7}{7} \overline{) 59}$ Day after Sunday = Monday Ans.
Thursday $\frac{+ 3}{\text{called "odd days"}}$ = Sunday.

For 365 days (one non-leap year), no. of odd days = 1

For 366 " (one leap year) " " " = 2

∴ For every 5 years, no. of odd days = 5

2. Fourth day after ~~22nd~~ 22nd is 26th of that Month.

3rd is Tuesday ∴ 10th is Tuesday
17th is Tuesday
24th is Tuesday
∴ 26th is ~~Tuesday~~ Thursday

$$\begin{array}{r} 26 - 3 = 23 \\ 7) 23 (3 \\ \underline{- 21} \\ \underline{\quad 2} \end{array}$$
 ∴ Tuesday + 2 =
~~2~~ = Thursday

2.

30

28

31

30

31

30

31

$\therefore \text{Monday} + 2 = \text{Wednesday}$.

31

30

31

30

5

$$7 \overline{)338(48}$$
$$\begin{array}{r} 28 \\ \hline 58 \\ \hline 56 \\ \hline 2 \end{array}$$

First and last days of any ordinary year will be same, and the same date in two consecutive years (given the first day year is not a leap year) will be one day past the earlier year.

4.

$$[\text{odd days}] = \text{No. of days b4 yesterday} + \frac{\text{No. of days after tomorrow}}{} + 2$$

$$= 2 + 2 + 2 = 6$$

$\therefore \underline{\text{Ans is Sunday.}}$

5.

$$289 + 386 + 2 = 677 \Rightarrow 7)677(96 \Rightarrow \text{Friday} + 5 = \text{Wednesday}$$

$$\begin{array}{r} 63 \\ \hline 47 \\ \hline 42 \\ \hline 5 \end{array}$$

6

Q: what was the day on 20.02.2020

S: For 19 years, no. of odd days will be

$$19+4 = 23 \quad 7) 23 \underline{) 13}$$

$\frac{21}{2} \rightarrow$ odd days for 19 years

For 31+20 days of 2020, no. of days = 51.

$$\therefore \text{no. of odd days} = 7) 51 \underline{) 49}$$

$$\therefore \text{Total no. of odd days} = 2+2 = 4$$

\therefore Thursday = .

Q: what was the day on 20.02.0050

S: For 49 years, no. of odd days will be

$$49+12 = 61 \quad 7) 61 \underline{) 18}$$

$\frac{56}{5} \rightarrow$ odd days for 49 years

For 31+20 = 51 days, odd days = 6

$$\therefore \text{Total odd days} = 11$$

$$= 7) 11 \underline{) 1}$$

$$\frac{7}{4}$$

No. of odd days after each $\frac{400}{400}$ years is 0.

Thus, every quadruple century ends with a Sunday.

English

1. The diamond of Africa is exported to many ~~people~~ ^{Peoples.}
2. More than one person ~~was~~^{is} killed.
3. Two-thirds of the building ~~was~~ destroyed.
4. It is night time we started our journey.
5. My brother drinks and gambles so frequently that everyone ^{else} in my family is fed up with him.
6. He is ~~such~~ such a man ^{as} who can do anything.
7. The mother is minding her child.
8. I ^{located} found the house and knocked at the door.

fraction of a singular obj
takes singular verb

Books

1. Wren and Martin
2. Objective English from Arihant

1. When the ^{cocktail} party was over, he became as sober as a judge. \Rightarrow drunk completely
 2. pass the buck \Rightarrow put blame on others
 3. French leave \Rightarrow leave ^{EGG} without information/permission
 4. Marching order \Rightarrow order to leave
 5. Pink slip \Rightarrow order of termination (the letter)
letter of or dismissal
 6. to try tooth and nail \Rightarrow try as hard as one can
 - Rammohan Roy tried to eradicate social evils ~~with~~ tooth and nail.
 - \Rightarrow Rammohan Roy tried tooth and nail to eradicate social evils.
 7. from China to Peru \Rightarrow from pillar to post \Rightarrow all four seas
 \Rightarrow four corners of the Earth \Rightarrow Everywhere under the Sun \Rightarrow to go almost everywhere and to do almost everything in search of something
 8. to grease the palm \Rightarrow bribe someone
 9. to bear the palm / to carry the day \Rightarrow to win / to be successful
 10. palmy days / salad days / halcyon days \Rightarrow days of prosperity or golden moments
 \Rightarrow gala days
 11. a plain Jane \rightarrow very simple girl
 12. femme fatale \Rightarrow an ~~at~~ attractive but dangerous woman
 13. pudding time \Rightarrow dinner
 14. to end in fiasco \Rightarrow to become a failure / to come cropper
- antonym*

15. to set the Thames on fire \Rightarrow to get a remarkable achievement

16. to paint the town red \Rightarrow to celebrate with pomp and show.

17. to bid adieu \Rightarrow to say goodbye

30th August, 2017

PREPOSITIONS

1. There is a monkey in the tree.

2. Birds live in the tree.

3. Rohit is sitting under the tree.

4. I am standing 100 metres below the peak.

5. He sat in the shade of the tree.

6. He stood under the shed.

7. We all sat on the ~~shadow~~^{shade} of the tree.

⑧ 8. He is on the committee. ⑧ special use of 'on'

9. I am watching a movie on the TV.

10. Sky is above our head.

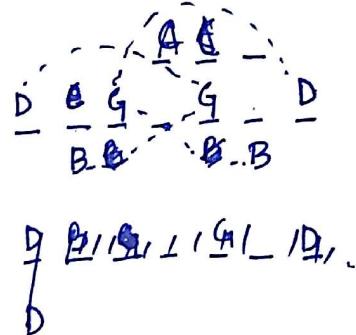
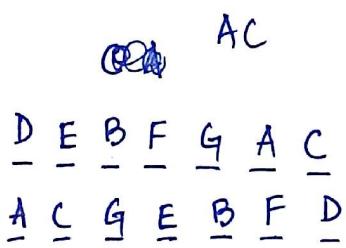
11. A plane is passing over our head.

Motion

ReasoningArrangement:

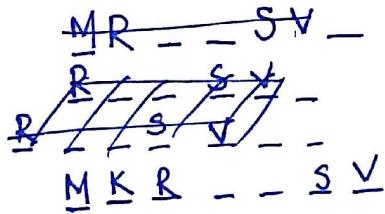
Q1. There are 7 persons A, B, C, D, E sitting in a row.

- a) D is 4 places away from G
- b) E is to the left of F
- c) C is to the immediate right of A
- d) D is at an extreme end.
- e) The no. of persons to the right of B is same as " " " " " left of G



1. who is to the left of B \Rightarrow
2. No. of persons between E and F \Rightarrow
3. If E is in 2nd posⁿ from the left, who is two places away from A? \Rightarrow

Q2. 7, R S V M W R K are sitting in a row, S sits to immediate left of V and third to the right of R, whereas M, who sits to the left extreme is next to K.



- (P.W)
- ① Immediate Right of S? \rightarrow V
 - ② If V and K exchange places with each other, who will be to the imm. left of R? \rightarrow N

SDPRemainder Theorem

1. Find the unit digit in $7^{105} \rightarrow 5/7\checkmark$
2. Find _____ $\rightarrow 7^{95} - 3^{58} \rightarrow 0/4/6/7$
3. Which of the following will divide the following completely?
 $(3^{25} + 3^{26} + 3^{27} + 3^{28}) \rightarrow 11/16/25/30$

1. $\frac{(a+1)^n}{a}$ gives Remainder 1

2. $\frac{a^n}{a+1}$
when $n = \text{odd}$, rem = a
 $n = \text{even}$, rem = 1

$49^{15}-1$ is divisible by $\checkmark 8/14/50/51$

1. $\frac{x^n - a^n}{x-a}$ ~~is divisible by~~ for all values of n gives remainder 0

2. $\frac{x^n + a^n}{x+a}$ for all ~~not~~ even values of n —

3. $\frac{x^n + a^n}{x-a}$ for all odd values of n —

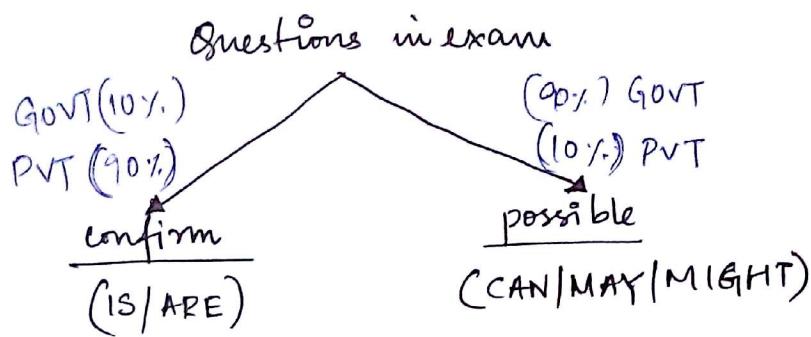
4. $49^{15}-1 = 7^{30}-1^{30}$ is divisible by $7+1 = 8$.

$$\begin{array}{r} 35^{105} \\ 67^{67} - 1 \\ \hline 68 \\ \hline = 67^{67} - 1^{67} \\ \hline \end{array}$$

$$\begin{aligned} &= \frac{105}{2} = (1) \\ &= \frac{67}{68} - (1) \\ &= \frac{1}{68} - (1) \\ &= 66 \end{aligned}$$

$$\begin{aligned} &n = 67 \\ &n^2 - 1 = 81 \times 9 \\ &\frac{68}{2} \overline{)1} \\ &\quad - 67 \\ &\quad \overline{1} \end{aligned}$$

$$\begin{aligned} & 4^{61} + 4^{62} + 4^{63} + 4^{64} \\ = & 4^{61} (1 + 4^1 + 4^2 + 4^3) \\ = & 4^{61} \times 85 \end{aligned}$$

SDPSYLLOGISM

No A is B → A ⊗ B X



Some A is not B → A ⊕ B

TYPE 1 : All statements & conclusions are +ve.

1. St1: All A is B

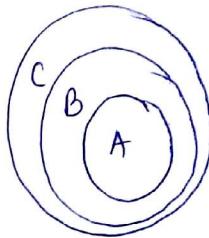
St2: All B is C

Con1: All C is B

Con2: All B is A

Con3: No A is C

Con4: All B is C



Rule: If all statements are +ve, the conclusion can never be negative

- Q1 (B)
- Q2 D
- Q3 (B)
- Q4 (C)
- Q5 (B) (D)
- Q6 (A)
- Q7 (A)
- Q8 (B)
- Q9
- Q10

