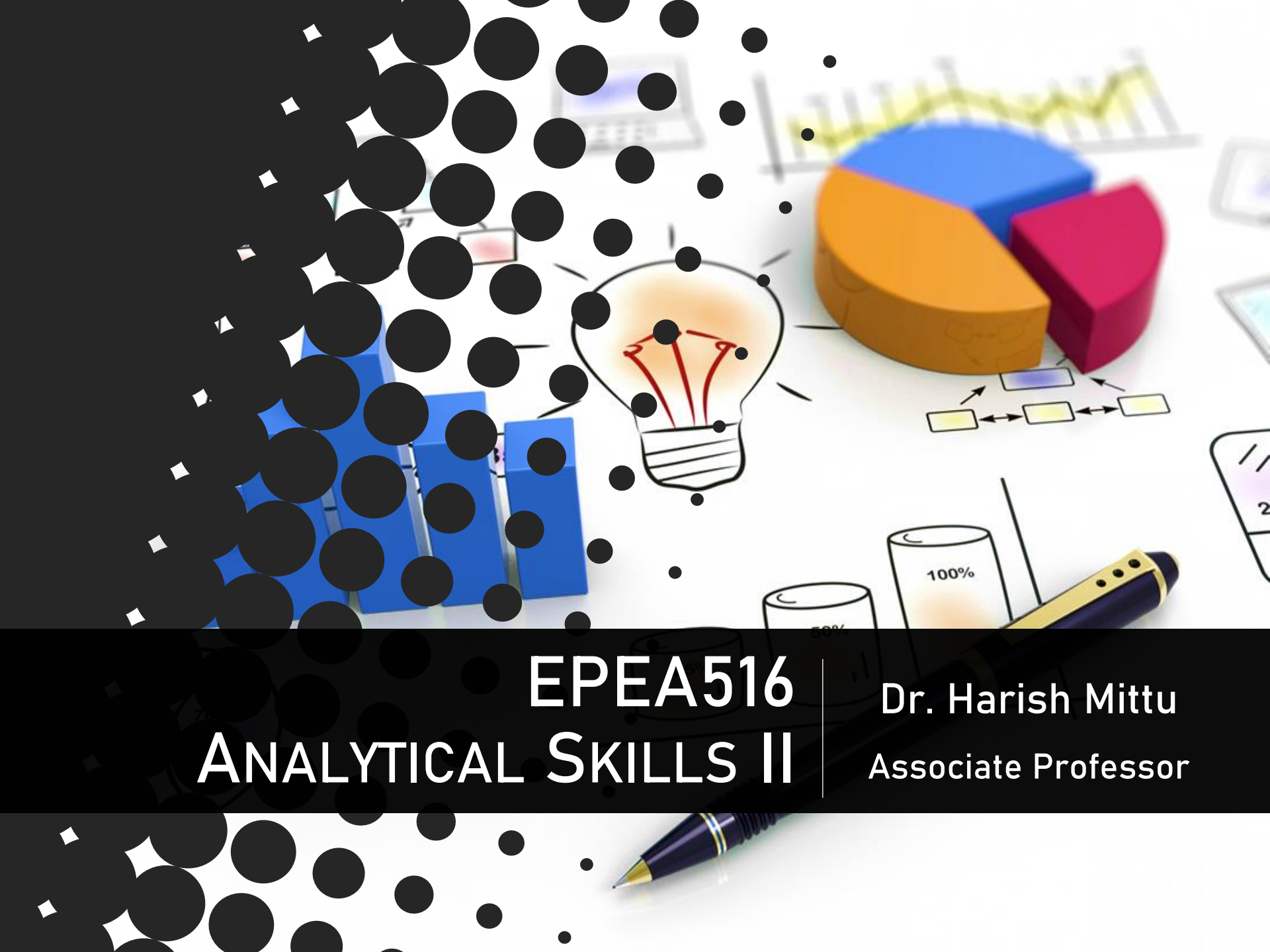

EPEA516
Analytical Skills II

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Learning Outcomes

After this lecture, you will be able to

- solve problems based on simple interest computation,
- analyze effect of change of principal, rate and time on simple interest.

Problem 1

- Calculate the simple interest on Rs. 3000 for 3 years at 5% per annum.
- P = Rs. 3000, R = 5% p.a., and T = 3 years
- $S.I. = \frac{P \times R \times T}{100}$
- $S.I. = \frac{\overset{30}{\cancel{3000}} \times 5 \times 3}{\cancel{100}}$
- S.I. = Rs. 450

Problem 2

- Find the simple interest on Rs. 32000 at $7\frac{1}{2}$ % p.a. for 8 months.
- P = Rs. 32000
- R = $7\frac{1}{2}$ % p.a. = $\frac{15}{2}$ % p.a.
- T = 8 months = ~~$\frac{8}{12}$~~ years
- T = $\frac{2}{3}$ years

Problem 2

- P = Rs. 32000, R = $\frac{15}{2}$ % p.a., & T = $\frac{2}{3}$ years

- S.I. = $\frac{P \times R \times T}{100}$

- S.I. = $\frac{\overset{320}{\cancel{32000}} \times \overset{5}{\cancel{15}} \times \cancel{2}}{\cancel{100} \times \cancel{2} \times \cancel{3}}$

- S.I. = Rs. 1600

Problem 3

- Find the simple interest on Rs 5000 at 15 % p.a. for the period from 25th May, 2022 to 28th July, 2022.
- P = Rs. 5000
- R = 15 % p.a.
- T = (6 days of May + 30 days of June + 28 days of July)
- T = 64 days
- T = $\frac{64}{365}$ years

Problem 3

- P = Rs. 5000, R = 15 % p.a., & T = $\frac{64}{365}$ years

- S.I. = $\frac{P \times R \times T}{100}$

- S.I. = $\frac{\cancel{5000}^{50} \times 15 \times 64}{\cancel{100} \times \cancel{365}^{73}}$

- S.I. = Rs. $\frac{9600}{73}$

- S.I. = Rs. 131.51 (approx.)

Problem 4

- The simple interest accrued on an amount of Rs. 1500 at the end of 2 years is Rs. 600. What would be the simple interest accrued on an amount of Rs. 3400 at the same rate and for the same period?
- P = Rs. 1500, T = 2 years, & S.I. = Rs. 600
- $R = \frac{S.I. \times 100}{P \times T}$
- $R = \frac{600 \times 100}{1500 \times 2}$

Problem 4

- $R = \frac{600 \times 100}{1500 \times 2}$ (2 cancelled, 20 above 100, 5 below 1500)
- R = 20%
- P = Rs. 3400, R = 20 % p.a., & T = 2 years
- $S.I. = \frac{P \times R \times T}{100}$
- $S.I. = \frac{3400 \times 20 \times 2}{100}$
- S.I. = Rs. 1360

Effect of Change of P, R & T on S.I.

- Change in Simple Interest (S.I.)=

$$\frac{[\text{Product of Fixed Parameter}]\times[\text{Difference of Product of Variable Parameters}]}{100}$$

Effect of Change of P on S.I.

- If P changes but R & T remains same.
- Change in S.I. = $\frac{[R \times T] \times [\text{Change in P}]}{100}$

Problem 5

- Calculate the change in simple interest (S.I.) for 3 years at 2% p.a. if the principal increases by Rs. 1000.
- Change in P = Rs. 1000, R = 2 % p.a., & T = 3 years
- Change in S.I. $= \frac{[R \times T] \times [\text{Change in P}]}{100}$

$$= \frac{2 \times 3 \times \cancel{1000}^{10}}{\cancel{100}}$$

$$= \text{Rs. } 60$$

Effect of Change of R on S.I.

- If R changes but P & T remains same.
- Change in S.I. = $\frac{[P \times T] \times [\text{Change in R}]}{100}$

Problem 6

- Calculate the change in simple interest (S.I.) on Rs. 500 for 3 years if rate % increases by 2% p.a.
- P = Rs. 500, Change in R = 2 % p.a., & T = 3 years
- Change in S.I. $= \frac{[P \times T] \times [\text{Change in } R]}{100}$

$$= \frac{\overset{5}{\cancel{500}} \times 3 \times 2}{\cancel{100}}$$

$$= \text{Rs. } 30$$

Effect of Change of T on S.I.

- If T changes but P & R remains same.
- Change in S.I. = $\frac{[P \times R] \times [\text{Change in T}]}{100}$

Problem 7

- Calculate the change in simple interest (S.I.) on Rs. 500 at 2% p.a. if the time increases by 6 years.
- P = Rs. 500, R = 2 % p.a., & Change in T = 6 years
- Change in S.I. $= \frac{[P \times R] \times [\text{Change in } T]}{100}$

$$= \frac{\cancel{500}^{5} \times 2 \times 6}{\cancel{100}}$$

$$= \text{Rs. } 60$$

Effect of Change of R & T on S.I.

- If R changes from R_1 to R_2, T changes from T_1 to T_2 , and P is fixed.

- Change in S.I. = $\frac{P \times [R_1T_1 - R_2T_2]}{100}$

Problem 8

- Calculate the change in simple interest (S.I.) on Rs. 8000 if the rate % changes from 4% p.a. to 5% p.a. and the time changes from 4 years to 3 years.
- P = Rs. 8000, R_1 = 4 % p.a., R_2 = 5 % p.a., T_1 = 4 yrs & T_2 = 4 yrs
- Change in S.I.

$$= \frac{P \times [R_1T_1 - R_2T_2]}{100}$$

$$= \frac{\overset{80}{\cancel{8000}} \times [4 \times 4 - 5 \times 3]}{\cancel{100}}$$

$$= 80 \times 1$$

$$= \text{Rs. } 80$$

Effect of Change of P, R & T on S.I.

- If P changes from P_1 to P_2, T changes from T_1 to T_2 , and R is fixed.

- Change in S.I. = $\frac{R\times [P_1T_1 - P_2T_2]}{100}$

- If P changes from P_1 to P_2, R changes from R_1 to R_2 , and T is fixed.

- Change in S.I. = $\frac{T\times [P_1R_1 - P_2R_2]}{100}$

Conclusion

- S.I. $= \frac{P \times R \times T}{100}$
- Time
  - Years
  - Months
  - Days
- Effect of Change of P, R & T on S.I.

Summary

- Simple Interest Computation
- Principal, Rate & Time - Simple Interest

That’s all for now…