

# Riviera International Academy

## Assignment-2077

(Shrawan 11, 2077, Sunday)

Class: Ten

### Subject-HPE

A. Short answer questions:

1. What is development? Mention any four importance of it.
2. Explain the relationship between development and environment.
3. Explain the relationship between human and development.
4. Explain the relationship between environment and population.
- 5.

### विषय - नेपाली

शब्द निर्माण प्र क्रया अन्तर्गत उपसर्ग ,प्रत्यय , दिवत्व, समास र सन्धि प्र क्रया पर्दछन्। उपसर्ग र प्रत्ययको पढाइ भई सकेकोछ। अब दिवत्व र समास मात्र पढ्नु पर्छ। आज दिवत्वबाट शब्द निर्माण सक्नेछौं। दिवत्व तीन प्रकारका छन्। दिवत्व भनेको उही शब्द दोहोरिएर शब्द बन्ने प्र क्रया हो। १ ) पूर्ण दिवत्व -उही शब्द जस्ताको त्यस्तै दोहोरिएमा पूर्ण दिवत्व हुन्छन्। उदाहरण - गाउँ +गाउँ = गाउँ गाउँ, बार +बार =बार बार २ )आं शक दिवत्व-उही शब्दको केही अंश मात्र दोहोरिएर शब्द बन्ने प्र क्रया हो। उदाहरण -सानो +सानो =ससानो ,गहना +गहना =गर्गहना ३ )आपरिवर्तित दिवत्व-उही शब्दकोध्वनी परिवर्तन भई नयाँ शब्द बन्ने प्र क्रया हो। उदाहरण -भात +भात =भातसात ,पालो +पालो =आलोपालो यसरी लेख्नुहोस् -- दिवत्व शब्द दोहोरिएको अंश झैझगडा झगडा+झगडा प्रश्न :तलका शब्दको निर्माण प्र क्रया देखाउनुहोस्। ककसको ,काटकुट ,मरमसला ,केके ,रातो रातो ,अघि अघि ,तँ तँ सरसल्लाह ,तातो तातो ,ठुठुला ,खाऊ खाऊ ,उखुसुखु ,भातसात।

### Subject- Computer

Write the full forms of the following.

- |           |         |        |         |
|-----------|---------|--------|---------|
| a. UTP    | b. STP  | c. NIC | d. LAN  |
| e. MODEM  | f. MAN  | g. WAN | h. WLAN |
| i. TCP/IP | j. SMTP | k. POP |         |

Write the technical terms for the following.

- a. A group of interconnected computers.
- b. A path through data is transmitted from one computer to another.
- c. The amount of data transmitted per second through a communication channel.
- d. A network of computers formed by using cables.
- e. A network of computers formed by using unguided media.
- f. A transmission medium through which data are transmitted in the form of light.
- g. A computer on the network that provides resources to other computers on the network.
- h. A computer on the network that uses resources of the network.
- i. An operating system used in a server computer.
- j. A card through which a compute is connected on the network.
- j. A network device that retransmits signals to all nodes on the network.
- k. A network device that retransmits signals to a destination node on the network.

## Subject- Mathematics

Source: Photo of exercise are given below.

Work: Complete all up to 4

Do your work neatly

### *Compound Interest*

$$\text{or, } 210R = 10000 + 200R + R^2 - 10000$$

$$\text{or, } R^2 - 10R = 0$$

$$\text{or, } R = 10\% \text{ p.a.}$$

$$\text{Again, from equation (i), } P = \frac{80000}{R} = \frac{80000}{10} = \text{Rs } 8,000$$

Hence, the required rate of interest is 10% p.a. and principal is Rs 8,000.

**Example 14:** Suresh lent altogether 6,600 to Manoj and Pradeep for 2 years. Manoj agreed to pay simple interest at 15 % p.a. and Pradeep agreed to pay compound interest at the same rate. If Manoj paid Rs 112.50 more than Pradeep as the interest, find how much did Suresh lend to each of them?

#### **Solution:**

Suppose the money lent to Pradeep =  $P_1$  = Rs x.

$\therefore$  the money lent to Manoj =  $P_2$  = Rs (6,600 - x)

Here, time (T) = 2 years and rate (R) = 15 % p.a.

$$\text{Now, the simple interest to Manoj} = \frac{P_2 TR}{100} = \frac{\text{Rs } (6,600 - x) \times 2 \times 15}{100} = \text{Rs } \frac{19,800 - 3x}{10}$$

Also, the compound interest to Pradeep

$$= P_1 \left[ \left( 1 + \frac{R}{100} \right)^T - 1 \right]$$

$$= \text{Rs } x \left[ \left( 1 + \frac{15}{100} \right)^2 - 1 \right]$$

$$= \text{Rs } x \left[ \left( 1 + \frac{3}{20} \right)^2 - 1 \right]$$

$$= \text{Rs } x \left[ \left( \frac{23}{20} \right)^2 - 1 \right]$$

$$= \text{Rs } x \left[ \frac{529}{400} - 1 \right]$$

$$= \text{Rs } x \left[ \frac{529 - 400}{400} \right] = \text{Rs } \frac{129x}{400}$$

According to the question,

$$\text{or, } \frac{19,800 - 3x}{10} - \frac{129x}{400} = \text{Rs } 112.50$$

$$\therefore x = \text{Rs } 3,000$$

So, the money lent to Pradeep = x = Rs 3,000

The money lent to Manoj = 6,600 - x = 6,600 - 3,000 = Rs 3,600

**Example 15:** Mrs. Nepali borrowed Rs 75,000 from a commercial bank at the rate of 10% p.a. compounded annually for 2 years. After one year, the bank changed its policy to pay the interest compounded semi-annually at the same rate. What is the percentage difference between the interest of the first year and second year? Write reason with calculation.

#### **Answer checking:**

$$\text{S.I. paid by Manoj} = \frac{3600 \times 2 \times 15}{100}$$

$$= \text{Rs } 1,080$$

$$\text{C.I. paid by Pradeep} = 3000 \left[ \left( 1 + \frac{15}{100} \right)^2 - 1 \right]$$

$$= \text{Rs } 967.50$$

Now, Rs 1,080 - Rs 967.50 = Rs 112.50 which is given in the question.

**Solution:**

Here, principal ( $P$ ) = Rs 75,000 and rate ( $R$ ) = 10% p.a.

$$\begin{aligned} \text{Now, C.I. in the first year} &= P \left[ \left( 1 + \frac{R}{100} \right)^T - 1 \right] \\ &= 75,000 \left[ \left( 1 + \frac{10}{100} \right)^1 - 1 \right] \\ &= 75,000 \left( \frac{11-10}{10} \right) \\ &= \text{Rs } 7,500 \end{aligned}$$

**Alternative process**

$$\begin{aligned} \text{S.I. in the first year} \\ &= \frac{PTR}{100} = \frac{75,000 \times 1 \times 10}{100} \\ &= \text{Rs } 7,500 \end{aligned}$$

Then, the principal for the second year = Rs 75,000 + Rs 7,500

$$P' = \text{Rs } 82,500$$

$$\begin{aligned} \text{Again, C. I. in the second year} &= P' \left[ \left( 1 + \frac{R}{2 \times 100} \right)^{2T} - 1 \right] \\ &= 82,500 \left[ \left( 1 + \frac{10}{200} \right)^2 - 1 \right] \\ &= 82,500 \left[ \frac{21 \times 21 - 400}{400} \right] \\ &= 206.25 \times 41 \\ &= \text{Rs } 8,456.25 \end{aligned}$$

$\therefore$  The difference between the interest of second and first years = Rs 8,456.25 - Rs 7,500  
= Rs 956.25

And, the difference of interest in percent =  $\frac{956.25}{7,500} \times 100\% = 12.75\%$

Since, the interest compounded semi-annually is paid at the end of every six months, it is greater than the interest compounded annually by 12.75%.

**EXERCISE 3.1****General section**

1. a) If C.A. and C.I. are the compound amount and compound interest of a sum  $P$  in  $T$  years at  $R\%$  p.a. respectively, write the relationships among the following variables.
  - (i)  $P$ ,  $T$ ,  $R$ , and CA (Compounded annually)
  - (ii)  $P$ ,  $T$ ,  $R$  and CI (Compounded annually)
  - (iii)  $P$ ,  $T$ ,  $R$  and CA (Compounded semi-annually)
  - (iv)  $P$ ,  $T$ ,  $R$  and CI (Compounded semi-annually)

## Compound Interest

- b) The compound amount on a sum  $P$  in  $T$  years  $M$  months at  $R\%$  p.a. is  $CA$ . Write the relation among  $P$ ,  $T$ ,  $M$ ,  $R$  and  $CA$  compounded annually.
- c) If  $CI$  is the compound interest of a sum  $P$  in  $T$  years  $M$  months at  $R\%$  p.a., write the relation among  $P$ ,  $T$ ,  $M$ ,  $R$  and  $CI$  compounded annually.
- d) If  $CA$  is the compound amount of a sum  $P$  at the different rates  $R_1\%$ ,  $R_2\%$  and  $R_3\%$  in the first, second and the third years respectively, write the relation among  $P$ ,  $R_1$ ,  $R_2$  and  $R_3$  (compounded annually).
2. Calculate the compound interest without using the formula.
- a)  $P = \text{Rs } 5,000$ ,  $T = 2$  years,  $R = 4\%$       b)  $P = \text{Rs } 15,000$ ,  $T = 3$  years,  $R = 10\%$
3. a) Find the interest compounded annually and the simple interest of the sum of Rs 2,000 in 1 year at 5% p.a. Are both types of interest same? Write your conclusion.
- b) Find the amount compounded annually.
- (i) Principal ( $P$ ) = Rs 2,400, time ( $T$ ) = 2 years, rate ( $R$ ) = 5% p.a.  
(ii) Principal ( $P$ ) = Rs 3,125, time ( $T$ ) =  $1\frac{1}{2}$  years, rate ( $R$ ) = 8% p.a.
- c) Find the interest compounded annually.
- (i) Principal ( $P$ ) = Rs 8,000, time ( $T$ ) = 3 years, rate ( $R$ ) = 5% p.a.  
(ii) Principal ( $P$ ) = Rs 6,000, time ( $T$ ) =  $2\frac{1}{2}$  years, rate ( $R$ ) = 10% p.a.
- d) Find the amount compounded half-yearly (semi-annually).
- (i) Principal ( $P$ ) = Rs 5,000, time ( $T$ ) = 1 year, rate ( $R$ ) = 4% p.a.  
(ii) Principal ( $P$ ) = Rs 16,000, time ( $T$ ) =  $1\frac{1}{2}$  year, rate ( $R$ ) = 10% p.a.
- e) Find the interest compounded semi-annually.
- (i) Principal ( $P$ ) = Rs 2,500, time ( $T$ ) = 1 year, rate ( $R$ ) = 8% p.a.  
(ii) Principal ( $P$ ) = Rs 16,000 time ( $T$ )  $1\frac{1}{2}$  years, rate ( $R$ ) = 10% p.a.

### Creative section - A

4. a) Find the difference between simple interest and the annual compound interest on Rs 9,600 for 2 years at the rate of 5% per annum.
- b) Mrs. Pariyar borrowed Rs 50,000 from Mrs. Limbu for 3 years at 10% p.a. simple interest. She immediately deposited this sum of money in a commercial bank at the same rate of interest compounded annually for the same period of time. Calculate her profit at the end of 3 years.
- c) Find the difference between compound interest compounded semi-annually and simple interest on Rs 8,000 at 10% per annum in  $1\frac{1}{2}$  years.
- d) Sunayana borrowed a sum of Rs 25,000 at 12% p.a. simple interest for 1 year 6 months and lent to Bishwant at the same rate of compound interest compounded half-yearly for the same interval of time. How much profit did she make?
- e) Devasis deposited Rs 5,000 at 8% p.a. compound interest in a bank. Find the difference between the amounts compounded yearly and half-yearly in two years.

- f) Find the difference between compound interest compounded semi-annually and the interest compounded annually on Rs 16,000 at 10 % p.a. in  $1\frac{1}{2}$  years.
- g) Pratik borrowed Rs 1,50,000 from Bishu at the rate of 21 % per year. At the end of nine months how much compound interest compounded half-yearly should he pay? [Hints: 9 months = 6 months + 3 months =  $\frac{1}{2}$  year + 3 months]
- a) Find the amount compounded annually on Rs 9,000 for 2 years if the rates of interest for two years are 8 % and 10 % respectively.
- b) Find the compound interest compounded annually on Rs 1,00,000 for 3 years if the rates of interest in the first, second and the third years are 4 %, 5 % and 7 % respectively.
- c) Mr. Tharu borrowed a sum of Rs 1,00,000 from an Agricultural Bank for 3 years to upgrade his poultry farming. The bank charged 5% interest compounded annually for the first year and the rate of interest was gradually increased by 1% every year. How much interest did he pay at the end of third year?
- a) Simple interest on a sum of money for 2 years at 5% p.a. is Rs 960. Find the compound interest on the same sum and at the same rate for 1 year, if the interest is reckoned half-yearly.
- b) A person paid Rs 6,200 compound interest on a certain sum of money that he borrowed from a bank at 10% p.a. compounded annually for  $1\frac{1}{2}$  years. Find the compound interest on the same sum and at the same rate for the same period of time, if the interest had to be paid semi-annually.
- l) The compound interest on the sum of money at 8 % p.a. for 2 years is more than the simple interest on the same sum at the same rate for the same time by Rs 76.80. Find the sum.
- j) Harka Tamang borrowed a certain sum of money from Roshan Shrestha at the rate of 9 % p.a. simple interest for 2 years. He immediately lent this money to Raju Jha at the same rate of compound interest for the same period of time. If the interest paid by Harka is Rs 243 less than the interest paid by Raju, calculate the sum.

If the compound interest on a sum of money compounded semi-annually in one year at 5 % per annum is Rs 20 more than the compound interest on the same sum compounded annually in the same time and at the same rate, find the sum.

The difference between the annual and semi-annual compound interest on a sum of money is Rs 63 at the rate of 10 % per annum for  $1\frac{1}{2}$  years. Find the sum.

If the sum of simple interest and compound interest at the rate of 8% p.a. for 2 years is Rs 816, find the principal.

The compound interest of a certain sum for 2 years is Rs 738 and the simple interest of the same sum for the same interval of time at the same rate of interest is Rs 720. Find the sum and the rate of interest.

- b) The compound amount on a sum  $P$  in  $T$  years  $M$  months at  $R\%$  p.a. is  $CA$ . Write the relation among  $P$ ,  $T$ ,  $M$ ,  $R$  and  $CA$  compounded annually.
- c) If  $CI$  is the compound interest of a sum  $P$  in  $T$  years  $M$  months at  $R\%$  p.a., write the relation among  $P$ ,  $T$ ,  $M$ ,  $R$  and  $CI$  compounded annually.
- d) If  $CA$  is the compound amount of a sum  $P$  at the different rates  $R_1\%$ ,  $R_2\%$  and  $R_3\%$  in the first, second and the third years respectively, write the relation among  $CA$ ,  $P$ ,  $R_1$ ,  $R_2$  and  $R_3$  (compounded annually).
5. Calculate the compound interest without using the formula.
- a)  $P = \text{Rs } 5,000$ ,  $T = 2$  years,  $R = 4\%$       b)  $P = \text{Rs } 15,000$ ,  $T = 3$  years,  $R = 10\%$
6. 3. a) Find the interest compounded annually and the simple interest of the sum of Rs 2,000 in 1 year at 5% p.a. Are both types of interest same? Write your conclusion.
- b) Find the amount compounded annually.
- (i) Principal ( $P$ ) = Rs 2,400, time ( $T$ ) = 2 years, rate ( $R$ ) = 5% p.a.  
(ii) Principal ( $P$ ) = Rs 3,125, time ( $T$ ) =  $1\frac{1}{2}$  years, rate ( $R$ ) = 8% p.a.
- c) Find the interest compounded annually.
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(ii) Principal ( $P$ ) = Rs 6,000, time ( $T$ ) =  $2\frac{1}{2}$  years, rate ( $R$ ) = 10% p.a.
- d) Find the amount compounded half-yearly (semi-annually).
- (i) Principal ( $P$ ) = Rs 5,000, time ( $T$ ) = 1 year, rate ( $R$ ) = 4% p.a.  
(ii) Principal ( $P$ ) = Rs 16,000, time ( $T$ ) =  $1\frac{1}{2}$  year, rate ( $R$ ) = 10% p.a.
7. e) Find the interest compounded semi-annually.
- (i) Principal ( $P$ ) = Rs 2,500, time ( $T$ ) = 1 year, rate ( $R$ ) = 8% p.a.  
(ii) Principal ( $P$ ) = Rs 16,000 time ( $T$ )  $1\frac{1}{2}$  years, rate ( $R$ ) = 10% p.a.

### Creative section - A

4. a) Find the difference between simple interest and the annual compound interest on Rs 9,600 for 2 years at the rate of 5% per annum.
- b) Mrs. Pariyar borrowed Rs 50,000 from Mrs. Limbu for 3 years at 10% p.a. simple interest. She immediately deposited this sum of money in a commercial bank at the same rate of interest compounded annually for the same period of time. Calculate her profit at the end of 3 years.
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