

Business Studies

Class 12

Ch-9 Leadership

Q1: Who is a leader?

Q2: What is leadership?

Q3: What are the characteristics of a leader?

Q4: What are the functions of a leader?

Q5: What are the different styles of leadership?

Economics class 12

Ch-3 Theory of Consumer Behavior: Marginal Utility and Indifference Curve Analysis:

Q1: What is marginal utility analysis?

Q2: What is the total utility?

Q3: What is a marginal utility?

Q4: What is a relationship between total and marginal utility?

Q5: What is a law of diminishing marginal utility?

Class12(History) (Thursday Class)

Decolonisation in Asia & Africa

After 2nd World War decolonisation started in Africa. After 1945 African nationalism gained momentum. Moreover, the Africans working in US & UK faced racial discrimination. It is to be noted many nations of that time were pressuring the colonial powers to give independence to their respective colonies. Slowly the movement for independence spread throughout Africa. In 1962 a coalition government in Kenya was formed & when an election happened in 1963 then Kenya African National Union party got the majority & Kenyatta became President. He was born in a village named Gatundi & when the Mau Mau rebellion took place he was arrested. He remained in prison & was only released in 1961. In 1964 Kenya became a republic & Kenyatta became president who wanted gradual Africanisation of the government.

Questions:

- a) State the full form of KANU & KADU.
- b) Define neo-colonization
- c) Why did the Mau Mau rebellion happen?

Class12 (Political Science)

Chapter: Salient features of the Indian Constitution

The Indian Constitution is quite unique due to various reasons. It is one of the detailed constitution comprising of 395 articles. The constitution is self made & duly enacted one which is made by the people through a duly elected body. It does contain the Preamble which states the philosophy of the Constitution & declares India to be a Sovereign, Socialist, Secular, Democratic, Republic. The constitution has provided for a federal structure with unitary spirit. Moreover the constitution is a mixture of rigidity & flexibility where some provisions can be amended easily while some not.

Questions:

- a) Define the terms-Secular & Sovereign.
- b) What are the provisions in Indian Constitution which cant be amended easily?
- c) State one feature in Indian Constitution which is similar to Unitary Government.

Sociology

Date – 30.04.2020

Class – XII

Social Institutions

Hindu Marriage as a Religious Sacrament-

It is believed that a Hindu is born on this earth with certain specified missions in life which may be expressed through the 'purusarthas' comprising Dharma, Artha, Kama and Moksha. In order to fulfill these missions, in life, every Hindu has to go through different stages or the resting places of life, known as 'Ashramas.' The Ashramas are four in number, such as Brahmacharyashrama, Grihasthasharama, Vanaprasthashrama and Sanyasasharama.

The Hindu law-givers have made provision for the attainment of salvation by leading a Grihastha life too. The married householder is considered as the property of the society and he alone can completely discharge all the enjoined duties. It has also been ordained by the shastras that the 'dvija' is incompetent to perform all the duties in the absence of a wife. One must get married in order to become a full man or full woman.

The human society cannot continue without procreation. Procreation is possible through the gratification of sexual desire or 'Kama'. Moreover, among the Hindus the birth of a son is considered essential as it would enable the householder to attain 'moksha'. Hence marriage becomes obligatory among the Hindus. It is a sacred union between a man and a woman with the sole purpose of begetting a male child.

As regards the examination of the Hindu marriage in the light of its sacramental character, we must begin with the concept of sacrament. Sacrament is a symbolic religious ceremony to which are often added confirmation, penance, ordination and matrimony. Considering from this point of view, the Hindu concept of marriage as a sacramental union implies three propositions. First, marriage among the Hindus is considered divine in nature. It is a religious bond and not a contractual union. Secondly, a sacramental union implies that it is a permanent bond which does not end in this world or after the death of either partner but it continues even after death, in the next life.

Thirdly, the essential corollary of the sacramental nature of the Hindu marriage is its indissolubility. Once the ceremony of a Hindu marriage is over, nobody on this earth has the

power to dissolve the union. The belief in the indissolubility of the Hindu marriage springs out of the recognition of the spiritual ideals of marriage.

The permanent character and indissolubility of the Hindu marriage has been emphasized by the Apastama Dharma sutra and Manu. Apastamadharmasutra also holds that no kind of separation between the husband and the wife is possible. They have to perform the religious duties jointly.

The Grihasthashrama commences after marriage and is required for the fulfilment of 'panchamahajjnas' or five great sacrifices as the recitation of Vedas at home, burning oblations for gods, offering Sraddhha Tarpana, receiving and entertaining guests, and giving food to the Bhutas. The Grihasthashrama, which arises out of marriage has been held high. The 'Mahabharata' is quite emphatic in this connection. In the 'Santiparva', Yudhistira was persuaded by Dvaipayana Vyasa, Lord Indra also held that the life of a householder is only superior and sacred and gives scope for the fulfillment of life's mission.

The rites of the Hindu marriage also reflect its sacramental character. "There are certain rites which must be performed for marriage to be complete. The main rites are homa, offering of the hand of the bride and saptapadi, the bride and bridegroom going seven steps together". All these rites are performed by a Brahmin in the presence of the sacred fire and are accompanied by the Vedic 'Mantras' The Hindus lay so much emphasis on these rites that when any of these rites are not properly performed, the marriage may be legally questioned.

The Hindu marriage is also considered a sacrament in another sense. "A Hindu male goes through the performance of several sacraments during the course of his life. These begin with the laying of foetus and end with the cremation of his body." In between the laying of foetus (Garbhadhana) and cremation (Antyesthi) lie several sanskaras (sacraments) and marriage happens to be the most significant and essential among them. "Similarly, marriage is said to be essential for women because that is the only sacrament performed by them."

The concept of marriage as a mere civil institution or social contract is entirely foreign to the Hindu mind. Manu holds that a man without marriage cannot fully develop his her personality and must be regarded incomplete and imperfect. To be mothers are women created and to be fathers are men. Manu says that an unmarried person will never get peace after his death. The Mahabharata makes us believe that if an unmarried girl wants to go to heaven she cannot do so because she has not seen married life.

The sacramental nature of the Hindu marriage implies that "as marriage is said to be sacred it is irrevocable, the parties to the marriage cannot dissolve it at will. They are bound to each other until the death of either of them; and the wife is supposed to be bound to her husband even after

death.” After the solemnization of marriage, the couple is regarded to be one personality and because of that reason the ‘gotra’ of the wife is merged into the status and personality of the husband. In the past the union was considered so sacred that the dissolution of marriage caused by reasons other than death was considered contrary to the law of God and nature.

First; the Hindu marriage is desired for the fulfilment of Dharma of a householder and not primarily for sex. Secondly, the Hindu marriage implies that the martial bond is permanent in nature. Thirdly, the dissolution of marriage is not allowed and divorce is out of question. Fourthly, the completion of the Hindu marriage requires the performance of certain religious rites like ‘Homa’, ‘Panigrahana,’ ‘Saptapadi’ etc. and the burning of sacred fire and the chanting of mantras by a Brahmin priest.

Fifthly, marriage is desired for begetting a son or ‘putra’ who will come to the rescue of the father from falling into the ditch of hell (Put Narka). Sixthly, marriage is one among several sacraments (Sanskaras). It is the most essential sanskara. Seventhly, marriage is essential for entering into the Grahastashrama wherein several ‘rinas’ are to be repaid and several ‘Jajnas’ are to be performed.

Eighty, the unmarried persons are considered incomplete and imperfect and marriage makes their life complete. Ninthly, extra-marital or pre-marital sexual relationship is condemned and the wife regards the husband as a god during his life time and she is declared to be his better half or ‘Ardhangini’, sharing equally the fruits of pure or impure acts. Tenthly, the Hindu Marriage does not allow a widow to enter into wedlock.

Home Work

1. Explain the term Polyandry.
2. Explain Polygamy.
3. “ Hindu Marriage As A Religious Sacrament “..... Explain this statement with your own view point.

Accountancy Class XII

Retirement of a Partner

MEANING OF KEY TERMS USED IN THE CHAPTER

1. Retirement of a Partner

When a partner ceases to be a partner of the firm (other than because of death), it is known as **retirement of a partner**.

A partner may retire from the firm:

- (i) if there is an agreement to that effect, or
- (ii) if all the partners agree to his/her retirement, or
- (iii) if the partnership is at will, by giving notice in writing to other partners of his or her intention to retire.

It leads to reconstitution of the firm.

2. Revaluation of Assets

Revaluation of Assets means change in the value of assets, *i.e.*, present value being different from the book value of the assets.

3. Reassessment of Liabilities

Reassessment of Liabilities means reassessing the liabilities and determining the change, *i.e.*, whether the liability is more or less than that shown in the books of account.

4. Gaining Ratio

Ratio in which the continuing partners acquire retiring partner's share is called **gaining ratio**.

5. New Profit-sharing Ratio

Ratio in which the continuing partners (*i.e.*, partners other than retiring partner) decide to share future profits and losses, is known as **new profit-sharing ratio**.

6. Profit and Loss Suspense Account

It is the account which is debited to adjust the share of profit of retiring partner between the date of last Balance Sheet and the date of retirement, when profit-sharing ratio of continuing partners does not change.

SUMMARY OF THE CHAPTER

- **Retirement of a Partner:** When a partner ceases to be a partner it is called '**Retirement of a Partner**'.
- **Adjustment on Retirement of a Partner:** At the time of retirement of a partner, few accounting issues arise and are settled, *e.g.*, calculation of the new profit-sharing ratio and the gaining ratio, revaluation of assets and liabilities, treatment of goodwill, accumulated profits, reserves and surplus, share in profits or losses of the outgoing partner up to the date of retirement.

- **New Profit-sharing Ratio:** The ratio in which the continuing partners (*i.e.*, partners other than the retiring one) decide to share the future profits and losses, is known as the '**New Profit-sharing Ratio**'.

$$\text{New Share} = \text{Old Share} + \text{Acquired Share}$$

Unless agreed otherwise, it is presumed that the continuing partners acquire the retiring partner's share in their old profit-sharing ratio.

- **Gaining Ratio:** The ratio in which the continuing partners acquire the retiring partner's share is known as the '**Gaining Ratio**'.

$$\text{Gaining Ratio} = \text{New Ratio} - \text{Old Ratio}$$

$$\text{Gain of a Partner} = \text{New Share} - \text{Old Share}$$

- **Adjustment with regard to Goodwill:** When a partner retires, his share of profit is taken by the remaining partners. *The remaining partners then compensate the retiring partner in the form of goodwill in their gaining ratio.* The following entry is recorded for this purpose:

| | | |
|---|--------|------------------------------|
| Gaining Partners' Capital/Current A/cs | ...Dr. | [In gaining ratio] |
| To Retiring Partner's Capital/Current A/c | | [With his share of goodwill] |

If Goodwill Account appears in the old Balance Sheet, it is written off by passing the following entry:

| | | |
|------------------------------------|--------|----------------|
| All Partners' Capital/Current A/cs | ...Dr. | [In old ratio] |
| To Goodwill A/c | | |

- **Hidden Goodwill:** If a firm pays an amount in excess of total amount due to the retiring partner (after making all adjustments), then the excess amount is treated as hidden goodwill or his share of goodwill.
- **Revaluation of Assets and Reassessment of Liabilities:** At the time of retirement of a partner, assets are revalued and liabilities are reassessed; the increase or decrease in value of each asset/liability is recorded in the Revaluation Account. The net balance in the Revaluation Account is transferred to the Capital Accounts of all the partners (including the outgoing partner) in their old profit-sharing ratio.
- **Adjustment for Reserves and Accumulated Profits/Losses:** For the past undistributed profits or reserves, the amount is credited to all the partners in the old profit-sharing ratio.
- *Excess of Workmen Compensation Reserve over the Workmen Compensation Liability is credited to all Partners in their Old Profit-sharing Ratio.*
- *Excess of Investment Fluctuation Reserve over difference between Book Value and Market Value is credited to all Partners in their Old Profit-sharing Ratio.*

- **Adjustments for Reserves and Accumulated Profits/Losses through Single Adjustment Entry:** The net effect may also be adjusted through the following entry:

| | | |
|----------------------------|--|---------|
| (i) In Case of Net Profit: | Gaining Partners' Capital/Current A/cs | ...Dr.. |
| | To Sacrificing Partners' Capital/Current A/c | |
| (ii) In Case of Net Loss: | Sacrificing Partners' Capital/Current A/cs | ...Dr. |
| | To Gaining Partners' Capital/Current A/cs | |

- **Amount Due to a Retiring Partner:** Amount due to a retiring partner includes:

- Capital on the date of last Balance Sheet.
- Interest or salary, if any, payable to him.
- Share of profit or loss till the date of retirement.
- Share in the gain (profit) or loss on revaluation of assets and reassessment of liabilities.
- Share in the goodwill of the firm.
- Share in the General Reserve or Profit and Loss Account appearing in the Balance Sheet.

Out of the total of (i) to (vi), the amount of drawings and interest on drawings till the date of retirement is deducted.

The net amount payable will be settled by paying him cash or by transferring it to a separate Loan Account.

Solved Questions

Illustration 1 (Gaining Ratio).

Abhay, Krishan, Ajay and Danish are partners sharing profits and losses in the ratio of $\frac{1}{3}$, $\frac{1}{6}$, $\frac{1}{3}$ and $\frac{1}{6}$ respectively. Ajay retires and Abhay, Krishan and Danish decide to share profits and losses equally in future. Calculate the gaining ratio.

Solution:

CALCULATION OF GAINING RATIO

| Partners | New Share | Old Share | Gain/(Sacrifice) | Gaining Ratio |
|----------|---------------|---------------|--|---|
| Abhay | $\frac{1}{3}$ | $\frac{1}{3}$ | $\frac{1}{3} - \frac{1}{3} = 0$ | Krishan : Danish = $\frac{1}{6} : \frac{1}{6}$ or 1 : 1 |
| Krishan | $\frac{1}{3}$ | $\frac{1}{6}$ | $\frac{1}{3} - \frac{1}{6} = \frac{1}{6}$ (Gain) | |
| Ajay | ... | $\frac{1}{3}$ | $0 - \frac{1}{3} = -\frac{1}{3}$ (Sacrifice) | |
| Danish | $\frac{1}{3}$ | $\frac{1}{6}$ | $\frac{1}{3} - \frac{1}{6} = \frac{1}{6}$ (Gain) | |

Illustration 2.

Yash, Madhu, Neha and Kartik are partners sharing profits in the ratio of 3 : 3 : 2 : 1. Yash retires from the firm. Kartik takes $\frac{2}{3}$ rd of Yash's share and Neha takes the balance. Madhu's share of profit remains unchanged. Calculate gaining ratio and new profit-sharing ratio.

Solution:

Yash's share of profit is $\frac{3}{9}$; Kartik takes $\frac{2}{3}$ rd of $\frac{3}{9}$, i.e., $\frac{2}{9}$ and Neha takes $\frac{3}{9} - \frac{2}{9} = \frac{1}{9}$.

Therefore, the gaining ratio of Neha and Kartik = 1 : 2.

New Profit shares of Madhu, Neha and Kartik will be:

$$\text{Madhu} = \frac{3}{9}; \text{Neha} = \frac{2}{9} + \frac{1}{9} = \frac{2+1}{9} = \frac{3}{9}; \text{Kartik} = \frac{1}{9} + \frac{2}{9} = \frac{1+2}{9} = \frac{3}{9}$$

Hence, New Profit-sharing Ratio of Madhu, Neha and Kartik will be = $\frac{3}{9} : \frac{3}{9} : \frac{3}{9}$ or 1 : 1 : 1.

Illustration 3.

Arpit, Barun and Binay were partners in a firm sharing profits in the ratio of 3 : 1 : 1. On 31st March, 2020, their Balance Sheet was as follows:

| Liabilities | ₹ | Assets | ₹ |
|------------------------------|----------|------------------------------------|----------|
| Creditors | 40,000 | Bank | 31,000 |
| Bills Payable | 30,000 | Debtors | 70,000 |
| Workmen Compensation Reserve | 50,000 | Less: Provision for Doubtful Debts | 2,000 |
| Capital A/cs: | | Stock | 80,000 |
| Arpit | 1,50,000 | Building | 2,70,000 |
| Barun | 1,00,000 | Profit and Loss A/c | 20,000 |
| Binay | 99,000 | | |
| | 3,49,000 | | |
| | 4,69,000 | | 4,69,000 |

On 1st April, 2020, Barun retired on the following terms:

- (i) Building was to be appreciated by 10%.
- (ii) 10% Provision for Doubtful Debts was to be made on Debtors.

- (iii) Creditors ₹ 10,000 will not be claimed.
 (iv) There was an outstanding bill for repair ₹ 2,000.
 (v) Goodwill of the firm was valued at ₹ 75,000. Barun's share of goodwill is to be adjusted in the accounts of Arpit and Binay.
 (vi) Barun was to be paid ₹ 20,000 in cash and balance was to be transferred to his Loan Account.

Prepare Revaluation Account, Partners' Capital Accounts and Balance Sheet of Arpit and Binay after Barun's retirement.

Solution:

| Dr. | | REVALUATION ACCOUNT | | Cr. | |
|--|--------|---------------------|--------|-----|--------|
| Particulars | ₹ | Particulars | ₹ | | |
| To Provision for Doubtful Debts A/c (₹ 7,000 – ₹ 2,000) | 5,000 | By Building A/c | 27,000 | | |
| To Outstanding Repairs A/c | 2,000 | By Creditors A/c | 10,000 | | |
| To Gain (Profit) on Revaluation trfd. to: | | | | | |
| Arpit's Capital A/c | 18,000 | | | | |
| Barun's Capital A/c | 6,000 | | | | |
| Binay's Capital A/c | 6,000 | | | | |
| | 30,000 | | | | |
| | 37,000 | | | | 37,000 |

| Dr. | | PARTNERS' CAPITAL ACCOUNTS | | | | | | Cr. | |
|---|------------|----------------------------|------------|--------------------------------------|------------|------------|------------|-----|--|
| Particulars | Arpit ₹ | Barun ₹ | Binay ₹ | Particulars | Arpit ₹ | Barun ₹ | Binay ₹ | | |
| To Profit and Loss A/c | 12,000 | 4,000 | 4,000 | By Balance b/d | 1,50,000 | 1,00,000 | 99,000 | | |
| To Barun's Capital A/c (Goodwill) (Note 1) | 11,250 | ... | 3,750 | By Revaluation A/c (Gain) | 18,000 | 6,000 | 6,000 | | |
| To Bank A/c | ... | 20,000 | ... | By Workmen Com. Reserve A/c | 30,000 | 10,000 | 10,000 | | |
| To Barun's Loan A/c | ... | 1,07,000 | ... | By Arpit's Capital A/c (Goodwill) | ... | 11,250 | ... | | |
| To Balance c/d | 1,74,750 | ... | 1,07,250 | By Binay's Capital A/c (Goodwill) | ... | 3,750 | ... | | |
| | 1,98,000 | 1,31,000 | 1,15,000 | | 1,98,000 | 1,31,000 | 1,15,000 | | |

BALANCE SHEET OF THE NEW FIRM as at 1st April, 2020

| Liabilities | ₹ | Assets | ₹ |
|---------------------|----------|------------------------------------|----------|
| Creditors | 30,000 | Bank (₹ 31,000 – ₹ 20,000) | 11,000 |
| Bills Payable | 30,000 | Debtors | 70,000 |
| Outstanding Repairs | 2,000 | Less: Provision for Doubtful Debts | 7,000 |
| Barun's Loan | 1,07,000 | Stock | 80,000 |
| Capital A/cs: | | Building | 2,97,000 |
| Arpit | 1,74,750 | | |
| Binay | 1,07,250 | | |
| | 4,51,000 | | 4,51,000 |

- Notes:** 1. Barun's Share of Goodwill = ₹ 75,000 × 1/5 = ₹ 15,000, which is contributed by Arpit and Binay in Gaining Ratio, i.e., 3 : 1.
 2. Liability does not exist against Workmen Compensation Reserve. Therefore, it is distributed among the partners in their old profit-sharing ratio.

Illustration 4.

On 31st March, 2019, the Balance Sheet of Ashwin, Bijon and Nitish sharing profits and losses in proportion to their capitals, stood as follows:

| Liabilities | ₹ | Assets | ₹ |
|------------------|----------|-------------------|----------|
| Capital A/cs: | | Land and Building | 2,00,000 |
| Ashwin | 2,00,000 | Machinery | 3,00,000 |
| Bijon | 3,00,000 | Closing Stock | 1,00,000 |
| Nitish | 2,00,000 | Sundry Debtors | 1,00,000 |
| Sundry Creditors | 1,00,000 | Cash at Bank | 1,00,000 |
| | 8,00,000 | | 8,00,000 |

On 1st April, 2019, Ashwin retired and the remaining partners decided to carry on the firm. It was agreed to revalue the assets and reassess the liabilities on that date as follows:

- (i) Land and Building be written up by ₹ 60,000.
- (ii) Machinery be reduced by 20%.
- (iii) Closing Stock to be written down to ₹ 75,000.
- (iv) Provision for Doubtful Debts be made at 5%.
- (v) An amount of ₹ 20,000 included in creditors is no longer a liability.
- (vi) Scrap lying in the factory was sold for ₹ 80,000. (Ignore GST)
- (vii) Goodwill of the firm be valued at ₹ 1,40,000 and Ashwin's share of the Goodwill be adjusted in the accounts of Bijon and Nitish who will share future profits equally.
- (viii) Total Capital of the firm is to be the same as before the retirement. Individual Capitals of the remaining partners to be in their profit-sharing ratio.
- (ix) Amount due to Ashwin is to be settled on the following basis:
50% on retirement and the balance 50% within one year.

Prepare Revaluation Account, Capital Accounts of Partners, Bank Account and Balance Sheet after Ashwin's retirement.

Solution:

| REVALUATION ACCOUNT | | | |
|--|----------|--------------------------|----------|
| Dr. | ₹ | Cr. | ₹ |
| Particulars | | Particulars | |
| To Machinery A/c | 60,000 | By Land and Building A/c | 60,000 |
| To Closing Stock A/c | 25,000 | By Creditors A/c | 20,000 |
| To Provision for Doubtful Debts A/c | 5,000 | By Bank A/c (Scrap sale) | 80,000 |
| To Gain (Profit) on Revaluation transferred to Capital A/cs: | | | |
| Ashwin (2/7) | 20,000 | | |
| Bijon (3/7) | 30,000 | | |
| Nitish (2/7) | 20,000 | | |
| | 70,000 | | |
| | 1,60,000 | | 1,60,000 |

| Dr. | | | | PARTNERS' CAPITAL ACCOUNTS | | | | Cr. | | | |
|---|-------------|------------|-------------|--|-------------|------------|-------------|---------------------------------------|-------------|------------|-------------|
| Particulars | Ashwin ₹ | Bijon ₹ | Nitish ₹ | Particulars | Ashwin ₹ | Bijon ₹ | Nitish ₹ | Particulars | Ashwin ₹ | Bijon ₹ | Nitish ₹ |
| To Ashwin's Capital A/c* (Goodwill) | ... | 10,000 | 30,000 | By Balance b/d | 2,00,000 | 3,00,000 | 2,00,000 | By Balance b/d | 2,00,000 | 3,00,000 | 2,00,000 |
| To Bank A/c (50% of amount due paid) | 1,30,000 | ... | ... | By Revaluation A/c | 20,000 | 30,000 | 20,000 | By Bijon's Capital A/c* (Goodwill) | 10,000 | ... | ... |
| To Ashwin's Loan A/c (Balance trfd.) | 1,30,000 | ... | ... | By Nitish's Capital A/c* (Goodwill) | 30,000 | ... | ... | By Bank A/c (Balancing Figure) | ... | 30,000 | 1,60,000 |
| To Balance c/d (WN 2) | ... | 3,50,000 | 3,50,000 | | | | | | | | |
| | 2,60,000 | 3,60,000 | 3,80,000 | | 2,60,000 | 3,60,000 | 3,80,000 | | | | |

*Ashwin's Share of Goodwill ₹ 40,000 (i.e., ₹ 1,40,000 × 2/7) is adjusted between Bijon and Nitish in Gaining Ratio of 1 : 3 (WN 1).

| Dr. | | BANK ACCOUNT | | Cr. | |
|---------------------------------|----------|-------------------------|----------|-------------|----------|
| Particulars | ₹ | Particulars | ₹ | Particulars | ₹ |
| To Balance b/d | 1,00,000 | By Ashwin's Capital A/c | 1,30,000 | | |
| To Revaluation A/c (Scrap sale) | 80,000 | By Balance c/d | 2,40,000 | | |
| To Bijon's Capital A/c | 30,000 | | | | |
| To Nitish's Capital A/c | 1,60,000 | | | | |
| | 3,70,000 | | | | 3,70,000 |

BALANCE SHEET OF BIJON AND NITISH
as at 1st April, 2019

| Liabilities | ₹ | Assets | ₹ |
|------------------|----------|------------------------------------|----------|
| Bijon's Capital | 3,50,000 | Land and Building | 2,60,000 |
| Nitish's Capital | 3,50,000 | Machinery | 2,40,000 |
| Ashwin's Loan | 1,30,000 | Stock | 75,000 |
| Creditors | 80,000 | Debtors | 1,00,000 |
| | | Less: Provision for Doubtful Debts | 5,000 |
| | | Cash at Bank | 2,40,000 |
| | 9,10,000 | | 9,10,000 |

Working Notes:

1. Calculation of Gaining Ratio: Gain/(Sacrifice) = New Share – Old Share

$$\text{Bijon's Gain} = \frac{1}{2} - \frac{3}{7} = \frac{1}{14} \quad \text{Nitish's Gain} = \frac{1}{2} - \frac{2}{7} = \frac{3}{14}$$

Thus, Gaining Ratio of Bijon and Nitish = 1 : 3.

2. Total Capital of the new firm = ₹ 7,00,000

Thus, Bijon's Capital ₹ 3,50,000 (i.e., 1/2 of ₹ 7,00,000) and Nitish's Capital ₹ 3,50,000 (i.e., 1/2 of ₹ 7,00,000).

CLASS 12
COMPUTER SCIENCE
COMPUTER HARDWARE

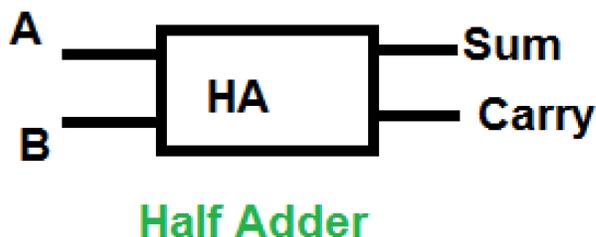
Combinational circuit is a circuit in which we combine the different gates in the circuit, for example encoder, decoder, multiplexer and demultiplexer. Some of the characteristics of combinational circuits are following –

- The output of combinational circuit at any instant of time, depends only on the levels present at input terminals.
- The combinational circuit do not use any memory. The previous state of input does not have any effect on the present state of the circuit.
- A combinational circuit can have an n number of inputs and m number of outputs.

Half Adder:

Half adder is a combinational logic circuit with two inputs and two outputs. The half adder circuit is designed to add two single bit binary numbers . It is the basic building block for addition of two **single** bit numbers. This circuit has two outputs **carry** and **sum**.

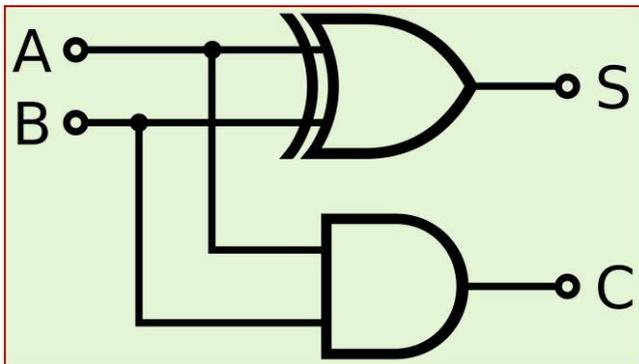
Block diagram



Truth Table of Half Adder:

| Inputs | | Outputs | |
|--------|---|---------|-------|
| A | B | Sum | Carry |
| 0 | 0 | 0 | 0 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 1 |

Half Adder Logic Circuit

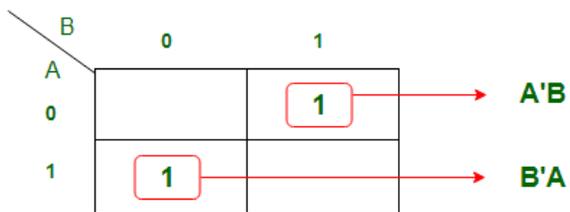


Logical Expression

Sum = A XOR B

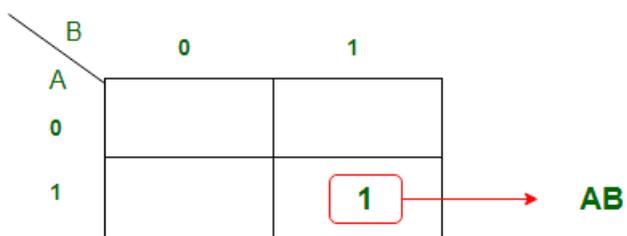
Carry = A AND B

K-map for output variable Sum 'S' :



$$A'B + B'A = A \text{ xor } B$$

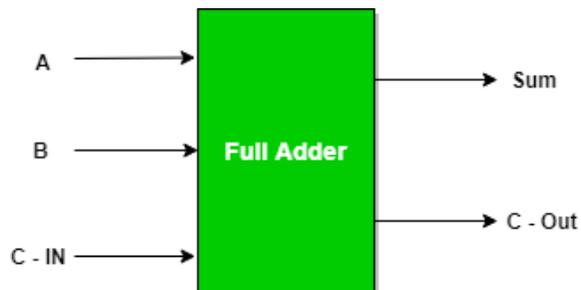
K-map for output variable Carry 'C' :



Full Adder :

Full Adder is the adder which adds three inputs and produces two outputs. The first two inputs are A and B and the third input is an input carry as C-IN. The output carry is designated as C-OUT and the normal output is designated as S which is SUM. When a full-adder logic is designed, you string eight of them together to create a byte-wide adder and cascade the carry bit from one adder to the next.

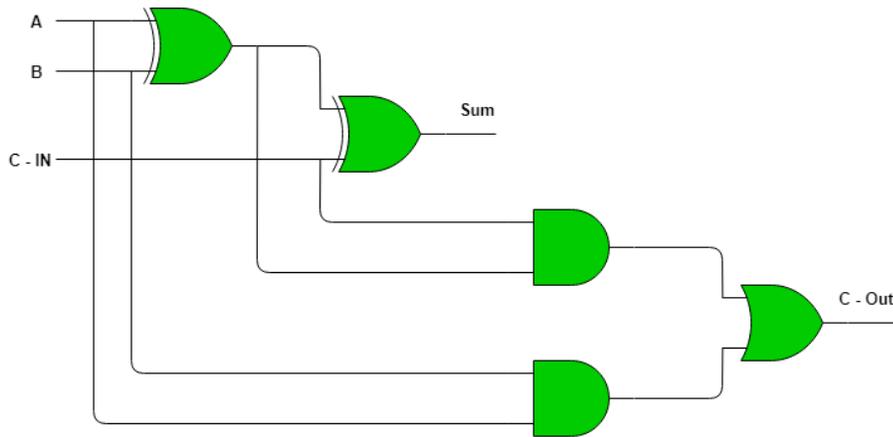
Block diagram



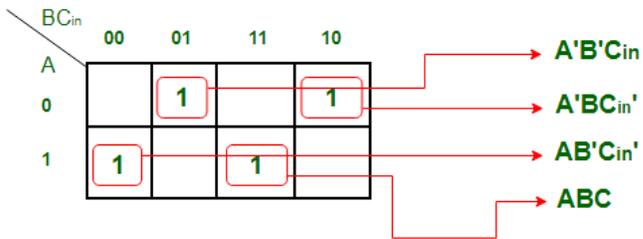
Full Adder Truth Table:

| INPUTS | | | OUTPUT | |
|--------|---|------|--------|---|
| A | B | C-IN | C-OUT | S |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 | 1 |
| 0 | 1 | 0 | 0 | 1 |
| 0 | 1 | 1 | 1 | 0 |
| 1 | 0 | 0 | 0 | 1 |
| 1 | 0 | 1 | 1 | 0 |
| 1 | 1 | 0 | 1 | 0 |
| 1 | 1 | 1 | 1 | 1 |

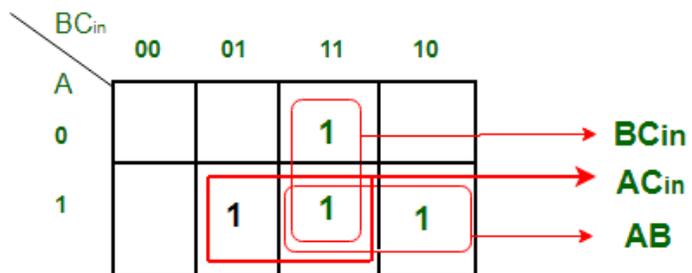
Full Adder logic circuit



K-map Simplification for output variable Sum 'S' :



K-map Simplification for output variable 'C_{out}'



ASSIGNMENT IV (PART – 2)

6. State the application of half adder.

7. write the truth table and draw the circuit diagram of half adder.

8. write the truth table of Full Adder.

9. Draw the logic circuit diagram for a Full Adder.

Debalina Dhar Chowdhury

आषाढ़ का एक दिन

Q). 'आषाढ़ का एक दिन ' नाटक के शीर्षक की सार्थकता पर प्रकाश डाले ।

मोहन राकेश द्वारा लिखित 'आषाढ़ का एक दिन ' नामक नाटक को आधुनिक युग का प्रथम नाटक कहा जा सकता है । इस नाटक की विषय वस्तु कालिदास के जीवन से संबंधित है

प्रस्तुत नाटक का शीर्षक महाकवि कालिदास की कृति " मेघदूत " की प्रारंभिक पंक्तियों से लिया गया है । आषाढ़ का महीना भारत में वर्षा ऋतु के प्रारम्भ का महीना है ।

नाटक के प्रथम अंक के प्रारंभ में मल्लिका वर्षा में भींग कर घर में प्रवेश करती है । बाहर आकाश में मेघों की गर्जना और मूसलाधार वर्षा हो रही है - ऐसे में मल्लिका प्रकृति का आनंद लेकर लौटती है ।

नाटक के दूसरे अंक में ये मेघ कालिदास के साथ उज्जैनी चले जाते हैं । मल्लिका के पास केवल सुखाने के लिए फैलाये गीले वस्त्र मात्र रह जाते हैं जो अभाव और उपेक्षा पूर्ण दुखद स्थिति में अस्तित्व का गीलापन व्यंजित करते हैं ।

तीसरे अंक में हम देखते हैं कि वर्षा और मेघ का गर्जन सुनाई दे रहा है मातुल भीगें वस्त्रों में बैशाखी के सहारे चलते हुए आता है । और फिर तीसरे अंक में ही कालिदास के साथ ही ये मेघ वर्षा और गर्जन को लेकर फिर लौट आते हैं ।

पूर्व मेघ यौवनागमण और प्रेमार्पण का है , उत्तर मेघ उमड़ती घुमड़ती स्मृतियों का पुंज है , आत्म साक्षात्कार का लेखा - जोखा और नियति का व्यंग्य है ।

इस पूरे नाटक में आषाढ़ के ये मेघ आदि से अंत तक छाये रहते हैं । अलग - अलग समय पर ये मेघ अलग- अलग भावों का उद्दीपन बन जाते हैं । प्रथम अंक में प्रेम की अनुभूति जगाती है और कवि राजसत्ता के संपर्क ने आता है । दूसरे अंक में उसका मोह भंग होता है और राजसत्ता अपने वास्तविक रूप में उद्घाटित होता है तथा तीसरे अंक में कालिदास उससे मुक्त होता है । ये तीनों खंड समय के व्यवधान से युक्त हैं लेकिन मेघ और आषाढ़ का एक दिन की स्मृति उसे भर देती है ।

जीवन सौन्दर्य और आनंद का पर्याय आषाढ़ की वर्षा कालांतर में कैसे काल बन जाती है - इसे अपने पात्रों के जीवन की त्रासदी से जोड़कर राकेश जी ने नाटक को बहुत ही मार्मिक ढंग से चित्रित किया है ।

इस प्रकार हम देखते हैं कि नाटक आषाढ़ के एक दिन से प्रारंभ होकर आषाढ़ के एक दिन पर ही समाप्त होता है । शीर्षक को पढ़ कर पाठकों में एक उत्सुकता जागती है जो अंत तक बनी रहती है । अतः हम कह सकते हैं कि नाटक का शीर्षक पूर्णतः सार्थक है ।

Assignment-9.
Maths class-12.

Differentiability.

Let $f(x)$ be a real-valued function and a be any real number. Then, we define: -

(1) Right hand derivative: - $\lim_{h \rightarrow 0^+} \frac{f(a+h) - f(a)}{h}$, if it exists, is called the right-hand derivative of $f(x)$ at $x=a$ and is denoted by $Rf'(a)$.

(2) Left-hand derivative: $\lim_{h \rightarrow 0^-} \frac{f(a+h) - f(a)}{h}$, if it exists, is called the left-hand derivative of $f(x)$ at $x=a$ and is denoted by $Lf'(a)$.

A function $f(x)$ is said to be differentiable at $x=a$ if $f(x)$ is continuous at $x=a$ and $Rf'(a) = Lf'(a)$.

Ex 1 A function $f(x)$ is defined by

$$f(x) = \begin{cases} 3+2x & , -\frac{3}{2} < x \leq 0 \\ 3-2x & , 0 < x < \frac{3}{2} \end{cases}$$

Then prove that $f(x)$ is continuous at $x=0$ but $f(x)$ is not differentiable at $x=0$.

Ans
 $f(0) = 3$

Now $R.H.L = \lim_{x \rightarrow 0^+} f(x) = \lim_{x \rightarrow 0^+} (3-2x) = 3$

$L.H.L = \lim_{x \rightarrow 0^-} f(x) = \lim_{x \rightarrow 0^-} (3+2x) = 3$

Now $f(x)$ is continuous at $x=0$.

$$\begin{aligned}\text{Again, } f'(0) &= \lim_{h \rightarrow 0} \frac{f(0+h) - f(0)}{h} \\ &= \lim_{h \rightarrow 0} \frac{f(h) - 3}{h}.\end{aligned}$$

$$\begin{aligned}\underline{\text{Now}} \quad Rf'(0) &= \lim_{h \rightarrow 0^+} \frac{f(h) - 3}{h} = \lim_{h \rightarrow 0^+} \frac{3-2h-3}{h} \\ &= -2,\end{aligned}$$

$$\begin{aligned}\underline{\text{Now}} \quad Lf'(0) &= \lim_{h \rightarrow 0^-} \frac{f(h) - 3}{h} = \lim_{h \rightarrow 0^-} \frac{3+2h-3}{h} \\ &= 2.\end{aligned}$$

Hence $Rf'(0) \neq Lf'(0)$.

$\therefore f(x)$ is continuous at $x=0$ but $f(x)$ is not differentiable at $x=0$. proved

H.W (1) Find whether the following function is differentiable at $x=1$ and $x=2$ or not

$$f(x) = \begin{cases} x & , x < 1 \\ 2-x & , 1 \leq x \leq 2 \\ -2+3x-x^2 & , x > 2 \end{cases}$$

(2) For what value k of the function defined by $f(x) = \begin{cases} k(x^2+2) & , \text{if } x \leq 0 \\ 4x+6 & , \text{if } x > 0 \end{cases}$ is continuous at $x=0$? Hence check the differentiability of $f(x)$ at $x=0$.

CHEMISTRY - XII**Chemical Kinetics**

Half-Life of Reaction :-

1. Zero Order Reaction :-

$$kt = [A_0] - [A]$$

$$t \Rightarrow t_{\frac{1}{2}} = \text{half life. } [A] = \frac{[A_0]}{2}$$

$$kt_{\frac{1}{2}} = [A_0] - \frac{[A_0]}{2}$$

$$\text{or } \boxed{t_{\frac{1}{2}} = \frac{1}{k} \cdot \frac{[A_0]}{2}} \quad t_{\frac{1}{2}} \propto [A_0]$$

2. 1st Order Reaction :-

$$kt = \ln \frac{[A_0]}{[A]}$$

$$\Rightarrow kt_{\frac{1}{2}} = \ln \frac{[A_0]}{[A_0]/2}$$

$$\text{or } t_{\frac{1}{2}} = \frac{1}{k} \ln 2 \quad \text{or}$$

$$\boxed{t_{\frac{1}{2}} = \frac{0.693}{k}}$$

Collision Theory of Reaction Rate

This theory was proposed to explain the effect of temperature on rate of reaction. The salient features of this theory are:

1. A reaction occurs only when reactant molecules undergo collisions with each other.

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2. Only a fraction of total number of collision is effective to undergo chemical reaction.
3. For undergoing effective collisions, reacting molecules must acquire a definite amount of energy which is known as threshold energy.

Activation Energy (E_a)

Activation energy may be defined as the excess energy that the reactant molecules (having energy less than the threshold energy) must acquire in order to cross the energy barrier and to change into the products.

$$E_a = E_{\text{threshold}} - E_{\text{reactants}}$$

Arrhenius Equation

Arrhenius proposed an equation to establish the relation between temp. (T) and activation energy (E_a). The equation is

$$k = A \exp (-E_a / RT)$$

where, k = rate constant of the reaction, A = preexponential factor/ frequency factor/ Arrhenius constant/ collision frequency, E_a = energy of activation, R = universal gas constant, T = temperature in Kelvin scale.

Variation in Arrhenius Equation:

Type 1:

$$\log k = \log A - \frac{E_a}{2.303 RT}$$

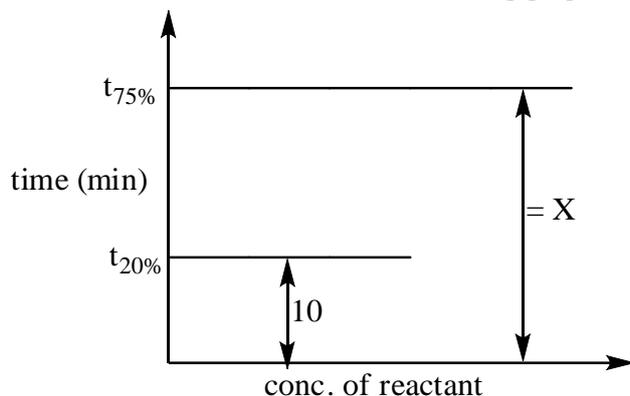
Type 2:

$$\log \frac{k_2}{k_1} = \frac{E_a}{2.303 R} \left[\frac{1}{T_1} - \frac{1}{T_2} \right]$$

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Assignment:

1. For the 1st order reaction, consider the following graph & find out the value of X.



Ans: 62.13 min

2. The rate of reaction increases four times when the temperature changes from 293K to 313K. What will be the energy of activation (E_a) of the reaction assuming that it does not change with temperature? [$R = 8.314 \text{ J K}^{-1} \text{ mole}^{-1}$]

Ans: 52.8544 kJ

3. The rate constants of a reaction at 500K and 700K are 0.02 s^{-1} and 0.07 s^{-1} respectively. Calculate the values of E_a & A.

Ans: $E_a = 18.23 \text{ kJ}$, $A = 1.61$

DREAMLAND SCHOOL
CLASS XII
ENGLISH LANGUAGE
HOME ASSIGNMENT 7
ACADEMIC YEAR- 2020-21

DATE- 30-4-2020

A. In each of the following items, sentence A is complete, but sentence B is not. Complete sentence B, making it as similar in meaning as possible to sentence A. Write down sentence B in each case.

1. (A) Few Indian actors are as good as him.

(B) He _____.

2. (A) His bodyguards are checking out the bathroom.

(B) The bathroom _____.

3. (A) "I'm ashamed of your behaviour!" shouted my father in anger.

(B) My father _____.

4. (A) I realised later that the mistake had been mine.

(B) Only _____.

5. (A) I admire Roger Federer and Rafael Nadal.

(B) Not only _____.

6. (A) No sooner did Rajiv leave school than it started to rain.

(B) Hardly _____.

7. (A) He won't get good marks in the examination if he doesn't get down to serious study.

(B) Unless _____.

8. (A) Her real name is Rita, but her friends call her Cookie.

(B) Although _____.

9. (A) She did not know that her best friend had been diagnosed with cancer.

(B) Little _____.

10. (A) He admires his teacher immensely.

(B) He has _____.

B. Write the review of a play which you recently saw. Use the notes given below:

Name of play and playwright – type of play – message / theme – plot – acting – directing – lights / sound / costumes / make-up / props and sets – reaction.