EAST POINT SCHOOL

STUDY NOTES

CLASS: XII (2021 – 2022)

SUBJECT: ENGLISH

DATE: 20/8/21

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KEEPING QUIET – BY PABLO NERUDA

Value points

- The poet in this poem aims to appeal the reader to take time out of their busy schedule for a little introspection and retrospection.
- The title, "Keeping Quiet" is symbolic of stopping all mindless activities, pondering over our actions and questioning and understanding the purpose of life that humans have created for themselves.
- It is to think about the outcomes of the mindless acts and analyse whether it was need in the first place or not. **IMPORTANT** – however, it should be noted that by 'keeping quiet', 'let's stop', and 'inactivity', the poet is not asking the reader to endorse total inactivity. Rather, he is asking the readers to stop for a moment and think about the usefulness of our actions, to internalise and introspect.
- The poet here, in this poem is also asking us to follow universal brotherhood, irrespective of class, caste, gender and creed.
- He wants us to stop all movements which symbolise agitation and restlessness.
- He says that these moments of introspection would be exotic because for a change, we won't think about our personal gains and emotions. During these moments of introspection, we would think of the world as a whole.
- Instead of concentrating on differences which may arise due to language, religion, creed and race, the poet implores upon the reader to forget these differences and concentrate upon humanity in general.
- He doesn't want us to speak in our languages (denoting barrier). Instead he asks us to speak the language of brotherhood, love and universal peace. Neruda though this poem wants people to break all barriers in communities and countries and let peace and brotherhood prevail.
- He wants us to think about our actions which destroy nature and his fellow beings. He says that the wars that we wage against each other and nature are all futile, and would not resolve any issue. What needs to be adopted is the feeling of unity, thinking that we are all in this together.
- Apart from this, the poet wants the human race to learn a lesson or two from the Earth. The Earth which appears to be inactive is selflessly productive. Men too could be productive and progressive without any aggression and selfishness. If only we could stop concentrating on 'I', we could progress as 'we'. And by 'we', the poet means the whole of human race without any sense of differentiation.

Questions

Q1. Which moment is referred to here and how will it be?

Ans. it will be a moment of peace and introspection. It will be a strange and attractive moment that will bring us closer.

Q2. How would we feel at that moment?

Ans. We will realize a feeling of oneness.

Q3. How will it bring all of us together?

Ans. By keeping quiet and still, we all will feel alike as if we are together.

2. Read the extract given below and answer the question that follow:

What I want should not be confused

with total inactivity.

Life is what it is about;

I want no truck with death.

Questions

Q1. What is it that should not be confused with total inactivity?

Ans. It is the moment of silence that should not be confused with total inactivity.

Q2. What is the life about?

Ans. Life is about actions and dynamism. It must go on. The efforts to keep the race alive cannot be suspended even for a day. Action is essence of life.

Q3. Explain: "no truck with death".

Ans. Total inactivity is a synonym of death and he has no association with death. This short silence is very much alive and a preparation for renewed hectic activity.

3. Read the extract given below and answer the question that follow:

Those who prepare green wars,

wars with gas, wars with fire,

victory with no survivors,

would put on clean clothes

and walk about with their brothers

in the shade, doing nothing.

Questions

Q1. In which wars are there no survivors?

Ans. There are no survivors in the wars of poisonous gases and the war of firearms.

Q2. Who would put on clean clothes?

Ans. The war-wagers would put on clean clothes.

Q3. What does 'put on clean clothes' signify?

Ans. 'Put on clean clothes' signifies the feelings of their mutual understanding.

4. Read the extract given below and answer the question that follow:

If we were not so single-minded

about keeping our lives moving

and for once could do nothing

perhaps a huge silence

might interrupt this sadness

of never understanding ourselves

and of threatening ourselves with death.

Questions

Q1. What will happen if we go on thinking single-minded?

Ans. In case we go on thinking single minded, we will remain busy in worldly activities, thereby we won't find time for self-introspection. It will be a sad situation.

Q2. How can we understand ourselves?

Ans. We can understand ourselves through self-introspection.

Q3. In what way can huge silence dispel sadness?

Ans. Huge silence will remove all our tension, violence and warfare. It will do away with all our sadness.

Q4. What is the 'sadness' that the poet refers to in the poem?

Ans. The poet Pablo Neruda refers to 'sadness' which we form out of our own thinking and actions. We understand a lot of things but fail to understand ourselves and our actions and this becomes the creator of all disasters. This is the 'sadness' that the poet refers to in the poem

Q5. Why does the poet want us to 'do nothing' for once?

Ans. The poet wants to do nothing for once, here he specifies that we should cease all our activities in order to have introspection within ourselves so that we can realize the exotic moment.

Q6. How we can know ourselves?

Ans. We can know ourselves through introspection.

Q7. Identify 'we'.

Ans. 'We' here refers to all human beings.

5. Read the extract given below and answer the question that follow:

Perhaps the Earth can teach us a

as when everything seems dead

and later proves to be alive.

Now I'll count up to twelve

and you keep quiet and I will go.

Questions

Q1. What does the earth teach us?

Ans. The earth teaches us how life springs from dead things. It further teaches us to realize life under stillness.

Q2. What does the poet mean to achieve by counting upto twelve?

Ans. He wants us to achieve peace by counting upto twelve.

Q3. What is the significance of 'Keeping Quiet'?

Ans. 'Keeping quiet' means that we should avoid all those activities which hurt the nature.

Short Answer Type Questions

Q1. Why does the poet want us to keep quiet?

Ans. Keeping quiet will develop a better understanding among human beings and allow us to establish communion with our fellow beings at spiritual level.

Q2. Does the poet advocate total inactivity and death by suggesting being quiet?

Ans. No, the poet does not advocate it. He wants no truck with death. In fact he wants to live life full bloodedly. But by advocating quietness he wants mixing of physical and spiritual aspect of life.

Q3. Why does not the poet want us to speak in any language?

Ans. The poet wants us not to speak in any language to introspect and know what we are about- know the meaning of our existence. He wants everybody to know his spirit and have spiritual contact with others for sometimes for which no language is required.

Q4. What will counting up to twelve and keeping still help us achieve?

Ans. Counting up to twelve and keeping quiet will assist us in attaining a state of peace in which we will be able to introspect and thus, see and appreciate the benefits of the symbiotic relationship that would exist between humans and between man and nature.

Q5. Do you think the poet advocates total inactivity and death?

Ans. The poet does not advocate total inactivity and death, but he does advise that we introspect deeply and not indulge in activity that is mindless and thus potentially destructive for human beings and for the balance that should exist between man and nature.

Q6. What is the 'sadness' that the poet refers to in the poem?

Ans. Man fails to understand themselves. They are always threatening themselves with death. When they do not understand themselves, they become sad. Only silence might interrupt this sadness and make them happy.

Q7. What symbol from Nature does the poet invoke to say that there can be life under apparent stillness?

Ans. Life under apparent stillness can be seen in nature. During the winter season, the earth under the snow looks dead, with no activity and no growth. But when the spring comes, the snow melts away, the seeds sprout and the grass grows. All activities of life start again.

Q8. According to the poet, what is that human beings can learn from nature?

Ans. Nature teaches us a lot of things. We must learn that all things are bound together and depend on each other for their survival. We should introspect ourselves by remaining calm and composed. So it teaches us to be quiet and still. It

is no use to hinder others. We should grow and develop at our own Place. We must be contended with what we possess. There is no need for greed. The nature always remains alive.

East Point School

STUDY NOTES

Class: - XII (2021-22)

Subject: ___Maths___

Study Note- 11

Date: 21/08/2021

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Chapter 7 Integration

Evaluation of Definite Integrals by Substitution

To evaluate $\int_a^b f(x)\,dx$ by substitution, the steps could be as follows:

1. Consider the integral without limits and substitute, y = f (x) or x = g(y) to reduce the given integral to a known form.
2. Integrate the new integrand with respect to the new variable without mentioning the constant of integration.
3. Resubstitute for the new variable and write the answer in terms of the original variable.
4. Find the values of answers obtained in (3) at the given limits of integral and find the difference of the

values at the upper and lower limits.

Problem: Evaluate the following integrals using substitution method

(a) $\int_0^1 [x/(x^2 + 1)]\,dx$ **(b)** $\int_0^{\pi/2} [\sqrt{(\sin \phi)} * \cos^5 \phi]\,d\phi$

Solution:

(a) Let $x^2 + 1 = t$

$\Rightarrow 2x\,dx = dt$

$\Rightarrow x\,dx = dt/2$

When x = 0, t = 1 and when x = 1, t = 2

So, $\int_0^1 [x/(x^2 + 1)]\,dx = (1/2)\int_1^2 dt/t$

$= (1/2)[\log t]_1^2$

$= (1/2)[\log 2 - \log 1]$

$= (\log 2)/2$

(b) Let $I = \int_0^{\pi/2} [\sqrt{(\sin \phi)} * \cos^5 \phi]\,d\phi$

$= \int_0^{\pi/2} [\sqrt{(\sin \phi)} * \cos^4 \phi * \cos \phi]\,d\phi$

Let $\sin \phi = t$

$\Rightarrow \cos \phi \, d\phi = dt$

When $\phi = 0$, $t = 0$ and when $\phi = \pi/2$, $t = 1$

So, $I = \int_0^1 [\sqrt{t} * (1 - t^2)^2] \, dt$

$= \int_0^1 [\sqrt{t} * (1 + t^4 - 2t^2)] \, dt$

$= \int_0^1 [t^{1/2} + t^{9/2} - 2t^{5/2}] \, dt$

$= [t^{3/2}/(3/2) + t^{11/2}/(11/2) - 2t^{7/2}/(7/2)]_0^1$

$= 1/(3/2) + 1/(11/2) - 2/(7/2)$

$= 2/3 + 2/11 - 4/7$

$= (154 + 42 - 132)/231$

$= 64/231$

Some Properties of Definite Integrals

There are some properties of definite integral which are very useful for calculating definite integral very

easily.

(i) $\int_a^b f(x) \, dx = \int_a^b f(t) \, dt$

(ii) $\int_a^b f(x) \, dx = -\int_b^a f(t) \, dt$

In particular, $\int_a^a f(x) \, dx = 0$

(iii) $\int_a^b f(x) \, dx = \int_a^c f(x) \, dx + \int_c^b f(x) \, dx$

(iv) $\int_a^b f(x) \, dx = \int_a^b f(a + b - x) \, dx$

(v) $\int_0^a f(x) \, dx = \int_0^a f(a - x) \, dx$

(vi) $\int_0^{2a} f(x) \, dx = \int_0^a f(x) \, dx + \int_0^a f(2a - x) \, dx$

(vii) $\int_0^{2a} f(x) \, dx = 2 * \int_0^a f(x) \, dx$, if $f(2a - x) = f(x)$

$= 0$, if $f(2a - x) = -f(x)$

(vii) $\int_{-a}^a f(x) \, dx = 2 * \int_0^a f(x) \, dx$, if f is an even function i.e. $f(-x) = f(x)$

$= 0$, if f is an odd function i.e. $f(-x) = -f(x)$

STUDY NOTES
SUBJECT- BUSINESS STUDIES
CLASS – XII

Meaning

Staffing means putting people to jobs. It begins with human resource planning and includes different other functions like recruitment, selection, training, development, promotion and performance appraisal of work force.

Need and Importance of Staffing

1. Obtaining Competent Personnel: Proper staffing helps in discovering and obtaining competent personnel for various jobs.
2. High Performance: Proper staffing ensures higher performance by putting right person on the right job.
3. Continuous growth: Proper staffing ensures continuous survival and growth of the enterprise.
4. Optimum utilization of human resources: It prevents under-utilization of personnel and high labour cost.
5. Improves job satisfaction: It improves job satisfaction and morale of employee.

Staffing As a Part ofHuman Resource Management (HRM)

• **Staffing**
• Function which all managers have to perform as all managers directly deal with people
• Staffing refers to this kind of role played by all managers in small organizations.
• As organizations grow and number of people employed increases, a separate department called the human resource department is formed which consists of specialists who are experts in dealing with people.
• In fact early definitions of staffing focused narrowly on only hiring people for vacant positions. But today staffing is a part of HRM which encompasses not only staffing but also a number of other specialized services such as job evaluation, management of labour relations.
• **Human Resource Management**
• Involves procuring, developing, maintaining and appraising a competent and satisfied workforce to achieve the goals of the organization efficiently and effectively.
• Its purpose is to enable every human being working in the organization to make his best possiblecontribution..

PROCESS OF STAFFING

1. Estimating Manpower Requirement: It involves the following:
(a) Making inventory of current human resources in terms of qualification, training & skills.

(b) Assessing future human resource needs of all departments.
(c) Developing a programme to provide the human resources. Job Analysis is an intensive way of finding details related to all jobs.
2.**Recruitment:** It refers to identification of the sources of manpower availability and making efforts to secure applicants for the various job positions in an organization.
3. Selection: It is the process of choosing and appointing the right candidates for various jobs in an organization through various exams, tests &interviews.
4. Placement and Orientation: When a new employee reports for duty, he is to be placed on the job for which he is best suited. Placement is very important process as it can ensure "Right person for right job". Orientation/Induction is concerned with the process of introducing a new employee to the organization. The new employees are familiarized with their units, supervisors and fellow employees. They are also to be informed about working hours, procedure for availing leave, medical facilities, history and geography of organization and rules/regulations relating to their wages etc.
5. Training and Development: Systematic training helps in increasing the skills and knowledge of employees in doing their jobs through various methods. Development involves growth of an employee in all respects. It is the process by which the employees acquire skills and competence to do their present jobs and increase their capabilities for higher jobs in future.
6. Performance Appraisal: It is concerned with rating or evaluating the performance of employees. Transfers and promotions of the staff are based on performance appraisal.

RECRUITMENT

(A) Recruitment: Recruitment may be defined as the process of searching for prospective employees and stimulating them to apply for jobs in the organization.

Sources of Recruitment

(A) Internal Sources
(B) External Sources

(A) Internal Sources of Recruitment

Internal sources refer to inviting candidates from within the organization.
Following are important sources of internal recruitment:
1. Transfers: It involves the shifting of an employee from one job to another, from one department to another or from one shift to another shift.
2. Promotions: It refers to shifting an employee to a higher position carrying higher responsibilities, prestige, facilities and pay.
3. **Lay-Off:** To recall the temporary worker for work is called Lay-Off, who were temporarily separated from organization due to lack of work.

Advantages of Internal Sources Recruitment:

(1) Employees are motivated to improve their performance.
(2) Internal recruitment also simplifies the process of selection & placement.
(3) No wastage of time on the employee training and development.
(4) Filling of jobs internally is cheaper.

Limitation of Internal Sources

(1) The scope for induction of fresh talent is reduced.
(2) The employee may become lethargic.
(3) The spirit of competition among the employees may be hampered.
(4) Frequent transfers of employees may often reduce the productivity of the organization.

External Sources of Recruitment

When the candidates from outside the organization are invited to fill the vacant job position then it is known as external recruitment. The common methods of external sources of recruitments are:

1. Direct Recruitment: Under the direct recruitment, a notice is placed on the notice board of the enterprise specifying the details of the jobs available.
2. Casual callers: Many reputed business organizations keep a data base of unsolicited applicants in their office. This list can be used for Recruitment.
3. Advertisement: Advertisement in media is generally used when a wider choice is required. Example– Newspapers, Internet, Radio, Television etc.
4. Employment Exchange: Employment exchange is regarded as a good source of recruitment for unskilled and skilled operative jobs.
5. Campus recruitment and labour contractors can be used for the purpose.

Merits of External Sources

1. Qualified Personnel: By using external source of recruitment the management can attract qualified and trained people to apply for the vacant jobs in the organization.
2. Wider Choice: The management has a wider choice in selecting the people for employment.
3. Fresh Talent: It provides wider choice and brings new blood in the organization.
4. Competitive Spirit: If a company taps external sources, the staff will have to compete with the outsiders.

Limitations of External Sources of Recruitment

1. Dissatisfaction among existing employees: Recruitment from outside may cause dissatisfaction among the employees. They may feel that their chances of promotion are reduced.
2. Costly process: A lot of money has to be spent on advertisement therefore this is costly process.
3. Lengthy Process: It takes more time than internal sources of recruitment.

Selection

Selection is the process of choosing from among the candidates from within the organization or from outside, the most suitable person for the current position or for the future position.

PROCESS OF SELECTION

The successive stages in selection process are:
1. Preliminary Screening: After applications have been received, they are

properly checked as regarding qualification etc. by screening committee. A list of candidates to be called for employment tests made and unsuitable candidates are rejected altogether.

2. Selection Tests: These tests include:

(a) Psychological tests which are based on assumption that human behaviour at work can be predicted by giving various tests like aptitude, personality test etc.

(b) Employment test for judging the applicant's suitability for the job.

3. Employment Interviews: The main purpose of interview is:

(a) to find out suitability of the candidates.

(b) to seek more information about the candidate.

(c) to give the candidate an accurate picture of job with details of terms and conditions.

4. Reference Checks: Prior to final selection, the prospective employer makes an investigation of the references supplied by the applicant. He undertakes a thorough search into candidates family background, past employment, education, police records etc.

5. Selection Decisions: A list of candidate who clear the employment tests, interviews and reference checks is prepared and then the selected candidates are listed in order of merit.

6. Medical/Physical Examination: A qualified medical expert appointed by organization should certify whether the candidate is physically fit to the requirements of a specific job. A proper physical exam will ensure higher standard of health & physical fitness of employees thereby reducing absenteeism.

7. Job Offer: After a candidate has cleared all hurdles in the selection procedure, he is formally appointed by issuing him an Appointment Letter. The broad terms and conditions, pay scale are integral part of Appointment Letter.

8. Contract of Employment: After getting the job offer, the candidate has to give his acceptance. After acceptance, both employer and employee will sign a contract of employment which contains terms & conditions, pay scale, leave rules, hours of work, mode of termination of employment etc.

Nishant wants to set a unit in rural area where people have very few job opportunities and labour is available at a low cost.

For this he wants four different heads for Sales, Accounts, Purchase and Production. He gives an advertisement and shortlists some candidates after conducting selection tests.

1. Identify and state the next three steps for choosing best candidates.

2. Also identify two values which Nishant wants to communicate.

Training: Training is the act of increasing the knowledge and technical skills of an employee for doing a particular job efficiently. Both existing employees and new employees get acquainted with their jobs and this increases job related skills.

Benefits to the firm: **1.** Avoids wastage of time, effort and money involved in the hit and trial	Benefits to the employee:**1.** Improved skills an knowledge so better career opportunities **2.** Better performance→ higher earnings

method. **2.** ↑ productivity(quality + quantity)thereby leading to ↑ profits **3.** Equips future managers(to take over in emergencies) **4.** ↑ employee morale,↓ absenteeism and turnover **5.** response to fast changing environment **6.** ↓ supervision, standardization of procedure and safety of operations	**3.** Less accidents **4.** ↑ satisfaction and morale of employees

Training Methods

(A) On the Job Method: It refers to the methods that are applied at the work place, where the employee is actually working. It means learning while doing. The following are the methods of On-the job training:

1. Apprenticeship Training: Under this, the trainee is placed under supervision of an experienced person (master worker) who imparts him necessary skills and regulates his performance. The trainee is given stipend while learning so that he/she can enjoy "earn while you learn" scheme.

2. Internship Training: Under this method an educational institute enters into agreement with industrial enterprises for providing practical knowledge to its students by sending them to business organizations for gaining practical experience.

3. Induction training is a type of training given to help a new employee in settling down quickly into the job by becoming familiar with the people, the surroundings, the job and the business. The duration of such type of training may be from a few hours to a few days. The induction provides a good opportunity to socialize and brief the newcomer with the company's overall strategy, performance standards etc. If carefully done, it saves time and cost (in terms of effectiveness or efficiency etc.)

Training and Development

Training is concerned with imparting technical knowledge in doing a particular job. But development is a wider process concerned with growth of an individual in all respects. However, both are related processes; training helps the employees in learning job skills whereas development shapes attitude of the employees.

Comparison of Training and Development

Basis	Training	Development

1. Definition	It means imparting skills and knowledge doing a particular job	It means growth of an employee in all respects.
2. Purpose	It is concerned with maintaining and improving current job performance.	It seeks to develop competence and skills for future performance.
3. Methods	It is imparted through on the job method.	It is imparted through off the job method.
4. Initiative	The boss takes the initiative for imparting training to his subordinates.	The individual takes the initiative for self growth and development.
5. Duration	Training programmes are organized for short terms.	

Accounting for Share Capital

BY: MOHD. ANAS

COMPANY

A company is an artificial person, created by law having separate legal entity with a perpetual succession and a common seal.

CHARACTERISTICS OF A C0MPANY

T	• Transferrability of Shares
O	• Ownership and Management (Separate)
P	• Perpetual Succession
C	• Common Seal
L	• Limited Liability
A	• Artificial Person
S	• Separate Legal Entity
S	• Share Capital

DIFFERENT FORMS OF COMPANIES

Basis	One Person Company	Private Company	Public Company
1. No. of Members	Minimum : 1 Maximum: 1	Minimum : 2 Maximum: 200 excluding its present and past employee members	Minimum : 7 Maximum: No limit
2.Transfer of shares	Not Applicable	Restricted by Articles of Associations	Usually no restriction
3. Prospectus	Not Applicable	No need to issue prospectus	Prospectus must be issued. If not, statement in lieu of prospectus is filed with Registrar of Companies.
4. Subscription of Shares	Shares cannot be offered to public	Shares cannot be offered to public	Can be offered to public.
5. Articles of Association	Special Articles of Association are necessary	Special Articles of Association are necessary	Table F given in the Companies Act, 2013 may be adopted.
6. No. of Directors	Minimum: 1 Maximum: 15	Minimum: 2 Maximum: 15	Minimum: 3 Maximum: 15

Basis	One Person Company	Private Company	Public Company
7. Allotment of shares	Not Applicable	Shares may be allotted as the Directors decide	Shares can be allotted only if Minimum subscription has been received.
8. Public Deposits	It cannot invite and accept deposits from public	It cannot invite and accept deposits from public	It can invite and accept deposits from public
9. Name	The word ‘OPC’ is used as part of the name.	The words ‘Private Limited’ are used as part of the name.	The word ‘Limited’ is used as part of the name.

SHARE CAPITAL

- Share Capital means the amount that a company raises through issue of shares.

- Share is a unit of smaller denominations in which the capital of a company is divided.

  For e.g. if a company has total capital of Rs. 50,00,000 which is divided into 5,00,000 units of Rs. 10 each, then each unit of Rs. 10 is known as a share.

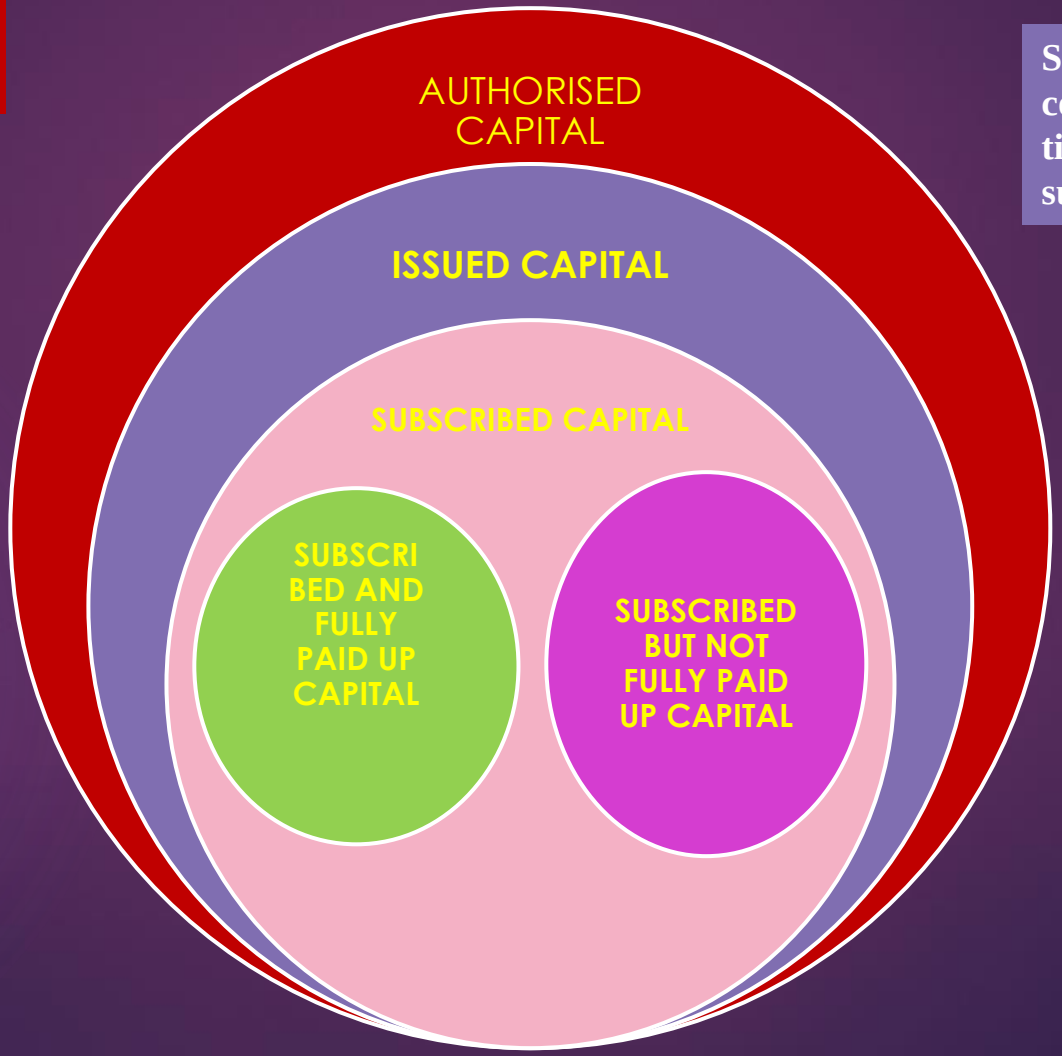
  Thus it is said that the company has 5,00,000 shares of Rs. 10 each.

- Rs. 10 is known as the Nominal or Face value of the share.

CLASSIFICATION OF SHARE CAPITAL

Maximum capital that a company may issue

Such Capital as the company issues from time to time for subscription



Part of the issued capital subscribed by the members for the time being.

Part of the subscribed capital fully paid by the public

Part of the subscribed not fully paid by the public because

(a) Either company has not called full amount or

(b) Company has called but public has not paid full amount.

ISSUE OF SHARES FOR CASH

Shares can be issued:

(a) At par (b) At premium

(a) Issue at Par – When the issue price of share is equal to its face value, shares are said to be issued at par.
For e.g. Both face value and issue price is Rs. 10.

(b) Issue at Premium – When the issue price of share is more than its face value, shares are said to be issued at premium.
For e.g. Face value of share is Rs. 10 but Issue price is Rs. 12.

ISSUE OF SHARES FOR CASH

If shares are issued at Par:

Stages	Journal Entries
(a) For receiving application money	Bank A/c Dr. To Share Application A/c (Being application money received)
(b) For transfer of application money	Share Application A/c Dr. To Share Capital A/c (Being application money transferred to Share Capital)
(c) For making allotment due	Share Allotment A/c Dr. To Share Capital A/c (Being allotment made due)
(d) For receiving allotment money	Bank A/c Dr. To Share Allotment A/c (Being allotment money received)\

Stages	Journal Entries
(e) For making call due	Share call A/c Dr. To Share Capital A/c (Being call money made due)
(b) For receiving call money	Bank A/c Dr. To Share Call A/c (Being call money received)

If shares are issued at Premium:

Stages	Journal Entries
(a) For receiving application money	Bank A/c Dr. To Share Application A/c (Being application money received)
(b) For transfer of application money	Share Application A/c Dr. To Share Capital A/c (Being application money transferred to Share Capital)

Stages	Journal Entries
(c) For making allotment due	Share Allotment A/c Dr To Share Capital A/c To Securities premium Reserve A/c (Being allotment made due)
(d) For Receiving allotment money	Bank A/c Dr. To Share Allotment A/c (Being Allotment money received)
(e) For making call due	Share call A/c Dr. To Share Capital A/c (Being call money made due)
(b) For receiving call	Bank A/c Dr. To Share Call A/c (Being call money received)

Q1.

Ashish Ltd. invited applications for 10,000 shares of Rs. 100 each payable as follows:

On application – Rs. 20
On allotment – Rs. 30
On First call – Rs. 20
On final call – balance

All the shares were applied and allotted. All the money was duly received.
You are required to pass Journal entries.

JOURNAL

Date	PARTICULARS	L F	Dr.	Cr.
	Bank A/c Dr. To Share Application A/c (Being application money received)		2,00,000	2,00,000
	Share Application A/c Dr. To Share Capital A/c (Being application money transferred to Share Capital)		2,00,000	2,00,000
	Share Allotment A/c Dr. To Share Capital A/c (Being allotment made due)		3,00,000	3,00,000
	Bank A/c Dr. To Share Allotment A/c (Being allotment money received)		3,00,000	3,00,000

Date	PARTICULARS	L F	Dr.	Cr.
	Share First call A/c Dr. To Share Capital A/c (Being final call money made due)		2,00,000	2,00,000
	Bank A/c Dr. To Share First Call A/c (Being Final call money received)		2,00,000	2,00,000
	Share Final call A/c Dr. To Share Capital A/c (Being final call money made due)		3,00,000	3,00,000
	Bank A/c Dr. To Share Final Call A/c (Being Final call money received)		3,00,000	3,00,000

Q2.

Bharat Ltd. was incorporated with a capital of Rs. 2,00,000 divided into shares of Rs. 10 each. 2,000 shares were offered to public for subscription and out of these 1,800 shares were applied for and allotted. Rs. 3 per share (including Re. 1 premium) was payable on application, Rs. 4 per share (including Re. 1 premium) on allotment, Rs. 2 per share on first call and Rs. 3 per share on final call. All the money was duly received except final call on 100 shares. Journalise.

JOURNAL

Date	PARTICULARS	L F	Dr.	Cr.
	Bank A/c Dr. To Share Application A/c (Being application money received)		5,400	 5,400
	Share Application A/c Dr. To Share Capital A/c To Securities Premium Reserve A/c (Being application money transferred to Share Capital)		5,400	 3,600 1,800
	Share Allotment A/c Dr. To Share Capital A/c To Securities Premium Reserve A/c (Being allotment made due)		7,200	 5,400 1,800
	Bank A/c Dr. To Share Allotment A/c (Being allotment money received)		7,200	 7,200

Undersubscription of shares:

Shares are said to be undersubscribed if the number of shares applied by the public is less than the number of shares offered for subscription by the company.

Date	PARTICULARS	L F	Dr.	Cr.
	Share First call A/c Dr. To Share Capital A/c (Being final call money made due)		3,600	3,600
	Bank A/c Dr. To Share First Call A/c (Being Final call money received)		3,600	3,600
	Share Final call A/c Dr. To Share Capital A/c (Being final call money made due)		5,400	5,400
	Bank A/c Dr. Calls in arrears A/c Dr. To Share Final Call A/c (Being Final call money received)		5,100 300	5,400

Calls in arrear: Any amount which has been called or demanded by company from shareholders but not paid by the shareholder is called as call in arrears.

Interest on Call in arrears - Company can charge interest on this @ 10% p.a. as per Table F

Q3.

Money plus company issued 2,50,000 equity shares of Rs. 10 each to public. All amounts have been received in lumpsum. Pass necessary journal entries.

JOURNAL

Date	PARTICULARS	L F	Dr.	Cr.
	Bank A/c Dr. To Share Application and Allotment (Being application money received)		25,00,000	25,00,000
	Share Application and Allotment A/c Dr. To Share Capital A/c (Being application money transferred to Share Capital)		25,00,000	25,00,000

Q4.

Premier Ltd. issued 10,000 equity shares of Rs. 100 each at a premium of Rs. 50 per share. The entire amount was payable in lumpsum at the time of application. All the amount was duly received. Pass necessary journal entries.

JOURNAL

Date	PARTICULARS	LF	Dr.	Cr.
	Bank A/c Dr. To Share Application and Allotment A/c (Being application and allotment money received)		15,00,000	15,00,000
	Share Application and Allotment A/c Dr. To Share Capital A/c To Securities Premium Reserve A/c (Being application money transferred to Share Capital and securities premium reserve)		15,00,000	10,00,000 5,00,000

ISSUE OF SHARES FOR CONSIDERATION OTHER THAN CASH

- When a company purchase any fixed asset or business and makes the payment to the vendor in form of issue of shares in place of cash it is called the issue of shares for consideration other than cash.

- Share can be issued at par or at premium.

ISSUE OF SHARES FOR CONSIDERATION OTHER THAN CASH

	JOURNAL ENTRIES
1. For purchase of assets	Assets A/c Dr. To Vendor (Purchased Asset)
2. For Issue of shares	**At Par** Vendor Dr. To Share Capital A/c (Shares issued to vendor at par) **At Premium** Vendor Dr. To Share Capital A/c To Securities Premium Reserve (Shares issued to vendor at premium)

Q7.

Atlas Co. Ltd. Purchased a machine from HMT Co. for Rs.64,000. It was decided to pay Rs.10,000 through cheque and balance will be paid by issue of shares of Rs.10 each.

Pass journal entries if shares are Issued at par

JOURNAL

Date	PARTICULARS	LF	Dr.	Cr.
	Machinery A/c Dr. To HMT Ltd. To Bank Account (Being the machine purchased and Rs.10,000 through cheque and balance to be paid by issue of shares)		64,000	 54,000 10,000
	HMT Ltd. (Vendor) Dr. To Share Capital (Being 5,400 shares of Rs.10 each issued at par to HMT Ltd.)		54,000	 54,000

Q8.

Atlas Co. Ltd. Purchased a machine from HMT Co. for Rs.64,000. It was decided to pay by accepting a bill of Rs.10,000 and balance will be paid by issue of shares of Rs.10 each at a premium of 20%.

Pass journal entries if shares.

JOURNAL

Date	PARTICULARS	LF	Dr.	Cr.
	Machinery A/c Dr. To HMT Ltd. To Bill Payable A/c (Being the machine purchased, accepted bill of Rs.10,000 and balance to be paid by issue of shares)		64,000	 54,000 10,000
	HMT Ltd. (Vendor) Dr. To Share Capital **(4500 x 10)** To Securities Premium Reserve **(4500 x 2)** (Being 4,500 shares of issued to vendor at a premium of Rs.2 per share)		54,000	 45,000 9,000

Working:

No. of shares to be issued = $\frac{\text{Amount payable to Vendor}}{\text{Issue Price}} = \frac{54,000}{12}$ = 4,500 shares

Issue price = Face Value + Premium

Q10.

A company issued 15,000 fully paid up equity shares of Rs.100 each for the purchase of the following assets and liabilities from Gupta Bros..

Plant Rs. 3,50,000; Stock Rs.4,50,000; Land and Building Rs.6,00,000; Sundry Creditors Rs.1,00,000. Pass necessary Journal entries

JOURNAL

Date	PARTICULARS		LF	Dr.	Cr.
	Plant A/c	Dr.		3,50,000	
	Land and Building A/c	Dr.		6,00,000	
	Stock A/c	Dr.		4,50,000	
	Goodwill A/c (**Balancing Figure**)	Dr.		2,00,000	
	To sundry creditors A/c				1,00,000
	To Gupta Bros.				15,00,000
	(Being the business purchased)				
	Gupta Bros.			1500000	
	To Share Capital A/c				1500000
	(Being issue of 15,000 shares of Rs.100 each)				

In the first Entry,

- If the total of credit side is higher, then Goodwill A/c is debited for difference.
- If the total of debit side is higher, then Capital Reserve A/c will be credited for difference.

Forfeiture of shares

Forfeiture of shares means cancellation of shares due to non-payment of calls due.

ENTRIES AT THE TIME OF FORFEITURE OF SHARES WHICH WERE ISSUED AT PAR

Share Capital A/c	Dr.	(No. of shares x Called up value)
To Share Forfeited A/c		(Amount received on forfeited shares)
To Calls-in-arrears A/c		(Amount due but not paid on shares)

ENTRIES for REISSUE OF FORFEITED SHARES

(i) If shares are reissued at par

Bank A/c Dr. (Amount received on reissue)

To Share Capital A/c (Amount credited as paid up)

OR

If shares are reissued at premium

Bank A/c Dr. (Amount received on reissue)

To Share Capital A/c (Amount credited as paid up)

To Securities Premium Reserve A/c (Excess amount over paid up)

OR

If shares are reissued at discount

Bank A/c Dr. (Amount received on reissue)

Share Forfeited A/c Dr. (discount allowed on reissue)

To Share Capital A/c (Amount credited as paid up)

Maximum permissible discount: Maximum discount that can be allowed on the reissue of forfeited shares is the amount forfeited.

(ii) Transfer of balance (gain on reissue) in the forfeited shares account

Share forfeited A/c Dr.

To Capital Reserve A/c

Q11.

Jain Ltd. issued 1,800 shares of Rs. 10 each at par. Amount to paid were as follows:

On application Rs. 2 per share
On allotment Rs. 3 per share
On first call Rs. 2 per share
On final call Rs. 3 per share

All the money was duly received except final call on 100 shares. These shares were forfeited and reissued at Rs. 8 per share as fully paid-up. Journalise.

JOURNAL

Date	PARTICULARS	L F	Dr.	Cr.
	Bank A/c Dr. To Share Application A/c (Being application money received)		3,600	3,600
	Share Application A/c Dr. To Share Capital A/c (Being application money transferred to Share Capital)		3,600	3,600
	Share Allotment A/c Dr. To Share Capital A/c (Being allotment made due)		5,400	5,400
	Bank A/c Dr. To Share Allotment A/c (Being allotment money received)		5,400	5,400

Date	PARTICULARS	L F	Dr.	Cr.
	Share First call A/c Dr. To Share Capital A/c (Being final call money made due)		3,600	3,600
	Bank A/c Dr. To Share First Call A/c (Being Final call money received)		3,600	3,600
	Share Final call A/c Dr. To Share Capital A/c (Being final call money made due)		5,400	5,400
	Bank A/c Dr. Calls in arrears A/c Dr. To Share Final Call A/c (Being Final call money received)		5,100 300	5,400
	Share capital A/c (100 x 10) Dr. To Share forfeited A/c (100 x 7) To Calls in arrears A/c (100 x 3)		1,000	700 300

Date	PARTICULARS	L F	Dr.	Cr.
	Bank A/c (100 x 8) Dr. Share Forfeited A/c (100 x 2) Dr. To Share Capital A/c (100 x 10) (100 shares forfeited for non payment of final call)		800 200	 1,000
	Share Forfeited A/c Dr. To Capital Reserve A/c (Forfeited shares reissued at Rs. 8 as fully paid up)		500	 500

Q12.

X ltd. Forfeited 900 equity shares of Rs. 100 each for the non-payment of allotment money of Rs. 30 per share and the first call of Rs. 20 per share. The second and final call of Rs. 25 per share has not been made. The forfeited shares were reissued for Rs. 90 per share as Rs. 75 paid-up. Journalise.

JOURNAL

Date	PARTICULARS	L F	Dr.	Cr.
	Share Capital A/c (900 x 75) Dr.		67,500	
	To Share Forfeiture A/c (900 x 25)			22,500
	To Calls-in-arrears A/c (900 x 50)			45,000
	(Being 900 shares forfeited for non-payment of allotment and first call)			
	Bank A/c (900 x 90) Dr.		81,000	
	To Share Capital A/c (90 x 75)			67,500
	To Securities Premium Reserve (90 x15)			13,500
	(Being 900 shares of Rs. 100 each reissued as Rs.75 paid up for Rs. 90 each)			
	Share Forfeiture A/c Dr.		22,500	
	To Capital Reserve A/c			22,500
	(Being balance in forfeiture transferred to Capital Reserve)			

Q13.

The Directors of Devendra Ltd. Resolved on 1st Jan, 2020 that 100 Equity shares of Rs. 10 each, Rs. 8 paid-up be forfeited for non- payment of final call of Rs. 2. On 1st February, 60 of these shares were reissued @ Rs. 7 per share as fully paid up. Pass journal entries.

JOURNAL

Date	PARTICULARS	L F	Dr.	Cr.
	Share Capital A/c (100 x 10) Dr. To Share Forfeiture A/c (100 x 8) To Calls-in-arrears A/c (100 x 2) (Being 100 shares forfeited for non- payment of final call)		1,000	 800 200
	Bank A/c (60 x 7) Dr. Share Forfeiture A/c (60 x 3) Dr. To Share Capital A/c (60 x 10) (Being 60 shares reissued at Rs.7 per share fully paid up)		420 180	 600
	Share Forfeiture A/c (480 - 180) Dr. To Capital Reserve A/c (Being balance in forfeiture transferred to Capital Reserve)		300	 300

Working:

Gain on reissued shares = $\frac{\text{Gain on forfeited shares}}{\text{No. of forfeited shares}}$ x Reissued shares = $\frac{800}{100}$ x 60 = **480**

Q14.

Virendra Ltd. Forfeited 20 shares of Rs. 100 each (Rs. 60 called up) issued at par to Mukesh on which he has paid Rs. 20 per share. Out of these, 15 shares were reissued to Sanjeev as Rs. 60 paid up for Rs. 45 per share.
Pass journal entries.

JOURNAL

Date	PARTICULARS	L F	Dr.	Cr.
	Share Capital A/c (20 x 60) Dr.		1,200	
	To Share Forfeiture A/c (20 x 20)			400
	To Calls-in-arrears A/c (20 x 40)			800
	(Being 20 shares forfeited for non payment of amount due)			
	Bank A/c (15 x 45) Dr.		675	
	Share Forfeiture A/c (15 x 15) Dr.		225	
	To Share Capital A/c (15 x 60)			900
	(Being 15 shares reissued at Rs.45 per share as Rs. 60 paid up)			
	Share Forfeiture A/c (300 - 225) Dr.		75	
	To Capital Reserve A/c			75
	(Being balance in share forfeiture transferred to Capital Reserve)			

Working:

Gain on reissued shares = $\frac{\text{Gain on forfeited shares}}{\text{No. of forfeited shares}}$ x Reissued shares = $\frac{400}{20}$ x 15 = **300**

ENTRIES AT THE TIME OF FORFEITURE OF SHARES WHICH WERE ISSUED AT PREMIUM

If Securities premium has been received:

Share Capital A/c Dr.

To Share Forfeited A/c

To Calls-in-arrears A/c

OR

If Securities premium has not been received:

Share Capital A/c	Dr.		(Called up amount)
Securities Premium Reserve A/c		Dr.	(SPR not received)
To Share Forfeited A/c			(Amount forfeited)
To Calls-in-arrears A/c			(Unpaid amount)

Q15.

JOURNAL

VT ltd. Forfeited 200 shares of Rs. 10 each, which were issued at a premium of Rs. 5 per share, held by Mohan for non-payment of Rs. 3 per share for final call. Of these, 100 shares were reissued to Narender at a discount of Rs. 4 per share.

Date	PARTICULARS	L F	Dr.	Cr.
	Share Capital A/c (200 x 10) Dr. To Share Forfeiture A/c (200 x 7) To Calls-in-arrears A/c (200 x 3) (Being 200 shares forfeited for non- payment of final call)		2000	 1400 600
	Bank A/c (100 x 6) Dr. Share Forfeiture A/c (100 x 4) Dr. To Share Capital A/c (100 x 10) (Being 100 shares of Rs. 10 each reissued at discount of Rs. 4)		600 400	 1000
	Share Forfeiture A/c (700 - 400) Dr. To Capital Reserve A/c (Being profit on reissued shares transferred to Capital reserve)		300	 300

Working:

Gain on reissued shares = $\frac{\text{Gain on forfeited shares}}{\text{No. of forfeited shares}}$ x Reissued shares = $\frac{1400}{200}$ x 100 = **700**

Q16.

150 shares of Rs. 10 each issued at a premium of Rs. 4 per share payable with allotment were forfeited for non-payment of allotment money of Rs. 8 per share including premium. The first and final call of Rs. 4 per share was not made. The forfeited shares were reissued at Rs. 10 per share as fully paid up.

JOURNAL

Date	PARTICULARS	L F	Dr.	Cr.
	Share Capital A/c (150 x 6) Dr. Securities Premium Reserve A/c (150 x 4) Dr. To Share Forfeiture A/c (150 x 2) To Calls-in-arrears A/c (150 x 8) (Being 150 shares forfeited for non- payment of allotment money)		900 600	 300 1200
	Bank A/c (150 x 10) Dr. To Share Capital A/c (150 x 10) (Being 150 shares reissued at Rs. 10 each as fully paid up)		1500	1500
	Share Forfeiture A/c Dr. To Capital Reserve A/c (Being profit on reissued shares transferred to Capital reserve)		300	300

East Point School

STUDY NOTES

SUBJECT: ECONOMICS

Class: - XII (2021-22)

Date: 12/08/2021

GOVERNMENT BUDGET

Estimates of government budget

Receipts		Payments	
Revenue Receipts	Amount	Revenue Expenditure	Amount
Tax revenue	3000	Interest	2000
Non tax revenue	1000	Subsidy	1500
Capital Receipts		Capital Payments	
DEBTS Borrowing and other liabilities	 3300	Repayment of loan Purchase of fixed assets	1500 2000
NON DEBTS Disinvestment Recovery of loan Other receipts	 300 400 2000	Loan to foreign government	2000
Total Receipts	9000	Total Payments	

Budget receipts:- Estimated money receipts of the government from all sources during the fiscal year

Budget Expenditure:-Estimated expenditure incurred by the government during the fiscal year

Revenue receipts:-Which neither creates liability nor cause in reduction in assets and recurring in nature

Tax and Non-Tax

1. Tax revenues consist of proceeds of taxes and duties levied by the government
    a. **Direct Tax**
    b. **Indirect Tax**

Basis	Direct Taxes	Indirect Taxes
Basis of imposition	Imposed on persons	Imposed on commodities
Burden shifting	Cannot be shifted	Can be shifted
Example	Income Tax Wealth Tax, Property Tax, Corporate Tax	VAT (Value Added Tax) GST Excise Duty, Custom Duty
Inflation	Helps In Reducing The Inflation	Indirect Taxes Promotes The Inflation.

Non-tax revenues consist of interest and dividends on investments made by the government and fee and other receipts for service rendered by it. Includes

Commercial Revenue: - Received by the government by selling the goods and services produced by government Payment for postage ,Interest on funds borrowed from govt. Interest and dividend on investment made by the government.

Administrative Revenue -It is the revenue that arises from administrative functions of the government.

CAPITAL RECEIPTS=Capital receipts are the receipts of the government which either create liability or reduce financial assets and are non-recurring

Types of Capital Receipts

- **Debt Creating Receipts (Creates Liability)**
  - Borrowing At Home
  - Borrowing By Foreign Government
  - Borrowing From R.B.I

- **Non Debt Receipts (Reduces Assets*)***
  - **Disinvestment** it means selling a part or whole of the shares of the public sector enterprises held by the government it.
  - **Recovery Of Loan** It includes recovery of loans granted by the central government to state and union territory government and other parties

Difference

Basis	Revenue Receipts	Capital Receipts
Meaning	Which do not creates liability or reduction in assets	Which do creates liability or reduction in assets
Nature	Recurring In Nature	Non-recurring In Nature
Examples	Income Tax, Fee And Fines	Recovery Of Loan, Borrowing

Government expenditure

- ***Revenue Expenditure:-***Which Do Not reduces Liability Or increases In Assets and are recurring
- ***Example.*** Interest Payments, Subsidies ,Education And Health Services ,Rural Development Payment Of Salaries Grants To States And Union Territories

- ***Capital Expenditure:-***Which either reduces Liability Or increases Assets and are non recurring ***Includes***
  - Repayment Of Loans Loans and Advance to State Govt. And Union Territories Purchase Of Fixed Assets Loans to Foreign Govt

Difference

Basis	Revenue Expenditure	Capital Expenditure
Meaning	Which Do Not reduces Liability Or increases In Assets (used for normal functioning of the govt.	Which either reduces Liability Or increases Assets (used for acquisition of assets)
Nature	Recurring In Nature	Non-recurring In Nature
Examples	Interest payment on debts, subsidies etc.	Purchas of assets, grant of loan etc

Informatics Practices(New)

CLASS XII Code No. 065 -2020-21

Unit 1: Data Handling (DH-2)

What is pandas?

Pandas is an open source, BSD-licensed library providing high-performance, easy-to-use data structures and data analysis tools forthe Python programming language.

Python with pandas is in use in a wide variety of academic and commercial domains, including Finance, Neuroscience, Economics, Statistics, Advertising, Web Analytics, and more.

What problem does pandas solve?

It enables us to carry out our entire data analysis workflow in Python. Combined with the excellent IPython toolkit and other libraries, the environment for doing data analysis in Python excels in performance, productivity, and the ability to collaborate.

Some of the Highlights of Python pandas

1. A fast and efficient DataFrame object for data manipulation with integrated indexing.
2. Tools for reading and writing data between in-memory data structures and different formats: CSV and text files, Microsoft Excel, SQL databases etc.
3. Flexible reshaping and pivoting of data sets

Installing pandas

The simplest way to install not only pandas, but Python and the most popular packages that is with Anaconda, a cross-platform (Linux, Mac OS X, Windows) Python distribution for data analytics and scientific computing. After running the installer, the user will have access to

pandas and the rest of the stack without needing to install anything else, and without needing to wait for any software to be compiled.

Installation instructions for Anaconda can be found here.

Another advantage to installing Anaconda is that you don't need admin rights to install it. Anaconda can install in the user's home directory, which makes it trivial to delete Anaconda if you decide (just delete that folder).

Note: Each time we need to use pandas in our python program we need to write a line of code at the top of the program:

```
import pandas as <identifier_name>
```

Above statement will import the pandas library to our program.

We will use two different pandas libraries in in our programs

1. Series
2. DataFrames

pandas Series

Series is a one-dimensional labeled array capable of holding any data type (integers, strings, floating point numbers, Python objects, etc.). The axis labels are collectively referred to as the **index**. The basic method to create a Series is to call:

```
import pandas as <identifier name>
<Series_name> = <identifier name>.Series(data, index=index)
```

Data can be many different things:

- a Python dict
- a Python list
- a Python tuple

The passed index is a list of axis labels.

Step by Step method to create a pandas Series

Step 1

Suppose we have a list of games created with following python codes:

```
games_list = ['Cricket', 'Volleyball', 'Judo', 'Hockey']
```

Step 2

Now we create a pandas Series with above list

```
# Python script to generate a Series object from List
import pandas as ps
games_list = ['Cricket', 'Volleyball', 'Judo', 'Hockey']
s= ps.Series(games_list)
print(s)
```

OUTPUT

```
0    Cricket
1 Volleyball
2  Judo
3 Hockey
dtype: object
```

In the above output 0,1,2,3 are the indexes of list values. We can also create our own index for each value. Let us create another series with the same values with our own index values:

```
# Python script to generate a Series object from List using custom Index
import pandas as pd
games_list = ['Cricket', 'Volleyball', 'Judo', 'Hockey'] s=
pd.Series(games_list,     index     =['G1','G2','G3','G4'])
print(s)
```

OUTPUT

```
G1     CRICKET
G2     VOLLEYBALL
G3      JUDO
G4       HOCKEY
dtype: object
```

In the above output Game_1, Game_2, Game_3, Game_4 are our own created indexes of list values.

In the similar manner we can create pandas Series with different data (tuple, dictionary, Object) etc.

Now we will create a Series with a Dictionary

Suppose we have a dictionary of games created with the following Python codes:

```
d = {'Cricket': 1, 'Volleyball': 2, 'Judo': 3 , 'Hockey':4}
```

Now we create a pandas Series with above dictionary

```
# Python script to generate a Dictionary Object
import pandas as pd
games_dict = {'Cricket': 1, 'Volleyball': 2, 'Judo': 3 , 'Hockey':4}
s= pd.Series(games_dict)
print(s)
```

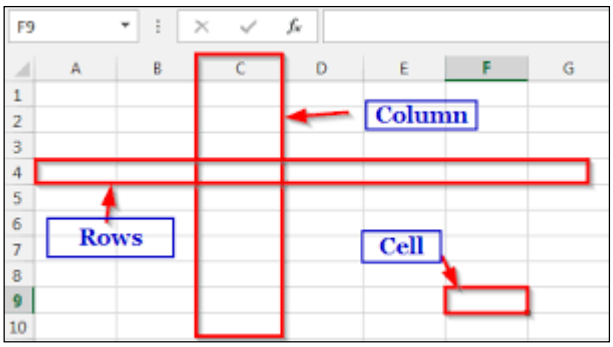
OUTPUT

```
Cricket 1
Volleyball 2
Judo 3
Hockey 4
Dtype : int64
```

The Python Pandas DataFrame

DataFrame is a Two-dimensional size-mutable, potentially heterogeneous tabular data structure. Tabular data structure has rows and columns. DataFrame is a way to represent and work with tabular data.

Pandas DataFrame is similar to excel sheet and looks like this



How to create a Pandas DataFrame?

In the real world, a Panda DataFrame will be created by loading the datasets from the permanent storage, including but not limited to excel, csv and MySQL database.

First we will use Python Data Structures (Dictionary and list) to create DataFrame.

Using Python Dictionary to create a DataFrame object

```
name_dict = { 'name' : ["Anita", "Sajal", "Ayaan", "Abhey"],
'age' : [14,32, 3, 6] }
```

If we print this dictionary using print(name_dict) command, it will show us the output like this:

```
{'name': ['Anita', 'Sajal', 'Ayaan', 'Abhey'], 'age': [14, 32, 3, 6]}
```

We can create a Pandas DataFrame out of this dictionary

```
# Python script to generate a Dictionary Object and print using variable
import pandas as pd
name_dict  = {
    'Name' : ["Anita", "Sajal", "Ayaan", "Abhey"],
    'Age' : [14,32, 4, 6]
    }
df = pd.DataFrame(name_dict)
print(df)
```

Output

```
    Name      Age
0   Anita      14
1   Sajal      15
2   Ayaan       4
3   Abhey       6
```

As you can see the output generated for the DataFrame object is look similar to what we have seen in the excel sheet as. Only difference is that the default index value for the first row is 0 in DataFrame whereas in excel sheet this value is 1. We can also customize this index value as per our need.

Note: A side effect of dictionary is that when accessing the samedictionary at two separate times, the order in which the information is returned by the does not remained constant.

One more example of DataFrame with customize index value

```
# Python script to generate a Dictionary Object with custom index
import pandas as pd
name_dict  = {
     'Name' : ["Anita", "Sajal", "Ayaan", "Abhey"],
     'Age' : [14,32, 4, 6]       }
df = pd.DataFrame(name_dict , index=[1,2,3,4])
print(df)
```

Output

```
    Name      Age
1   Anita      14
2   Sajal      15
3   Ayaan       4
4   Abhey       6
```

In the preceding output the index values start from 1 instead of 0

Viewing the Data of a DataFrame

To selectively view the rows, we can use head(...) and tail(...) functions, which by default give first or last five rows (if no input is provided), otherwise shows specific number of rows from top or bottom

Here is how it displays the contents

```
df.head()   # Displays first Five Rows
df.tails()   # Displays last Five Rows
print(df.head(2)) # Displays first Two Rows
print(df.tail(1)) #Displays last One Row
print(df.head(-2)) #Displays all rows except last two rows
print(df.tail(-1)) #Displays all rows except first row
```

Advance operations on Data Frames:

Pivoting:

	A	B	C	D	E	F
1	CBSE DUTY CHART 2019				PIVOT CHART	
2	SR NO	NAME OF INVIGILATOR	DATE OF DUTY	AMOUNT PAYABLE	INVIGILATOR	TOTAL AMOUNT PAYABLE
3	1	RAJESH DOGRA	2/3/2019	550	NARESH	1650
4	2	RAJEST KUMAR	2/3/2019	550	2/3/2019	550
5	3	NAVNEET	2/3/2019	550	2/4/2019	550
6	4	SANJEEV	2/3/2019	550	9/3/2019	550
7	5	SHIKHA	2/3/2019	550	NAVNEET	1650
8	6	NARESH	2/3/2019	550	28/4/2019	550
9	7	RC THAKUR	2/3/2019	550	2/3/2019	550
10	8	RAJESH DOGRA	5/3/2019	550	5/3/2019	550
11	9	RAJEST KUMAR	5/3/2019	550	RAJESH DOGRA	1650
12	10	NAVNEET	5/3/2019	550	14/3/2019	550
13	11	SANJEEV	5/3/2019	550	2/3/2019	550
14	12	SHIKHA	9/3/2019	550	5/3/2019	550
15	13	NARESH	9/3/2019	550	RAJEST KUMAR	1650
16	14	RC THAKUR	9/3/2019	550	14/3/2019	550
17	15	RC THAKUR	14/3/2019	550	2/3/2019	550
18	16	RAJESH DOGRA	14/3/2019	550	5/3/2019	550
19	17	RAJEST KUMAR	14/3/2019	550	RC THAKUR	1650
20	18	SHIKHA	28/4/2019	550	14/3/2019	550
21	19	NAVNEET	28/4/2019	550	2/3/2019	550
22	20	SHIKHA	2/4/2019	550	9/3/2019	550
23	21	NARESH	2/4/2019	550	SANJEEV	1100
24					2/3/2019	550
25					5/3/2019	550
26					SHIKHA	2200
27					28/4/2019	550
28					2/3/2019	550
29					2/4/2019	550
30					9/3/2019	550
31					Grand Total	11550

Sample Pivot chart created in Excel

A Pivot Table is an interactive way to quickly summarize large amounts of data. We can use a Pivot Table to analyse numerical data in detail, and answer unanticipated questions about our data. A PivotTable is especially designed for:

1. Querying large amounts of data in many user-friendly ways.
2. Expanding and collapsing levels of data to focus your results.
3. Filtering, sorting, grouping, and conditionally formatting the most useful and interesting subset of data enabling you to focus on just the information you want.

Creating Pivoting Tables with pandas' DataFrame

Pivot Tables in pandas

With pandas' pivot tables we can create a spreadsheet-style pivot table using DataFrame.

Steps to create a pandas' pivot table

Step 1

Create a DataFrame using Dictionary or any other sequence

Step 2

Use previously created DataFrame to generate a Pivot Table

Step 3

Print the Pivot Table

Example 1:

```
# Pyhton script demonstrating the use of pivot_table() method
import pandas as pd
name_dict = {
    'INVIGILATOR' : ["Rajesh", "Naveen","Anil","Naveen","Rajesh"],
   'AMOUNT' : [550,550,550,550,550],
      }
df = pd.DataFrame(name_dict )
print(df)
pd.pivot_table(df, index = ['INVIGILATOR'],aggfunc='sum')
```

Output

```
      INVIGILATOR  AMOUNT
0      Rajesh          550
```

```
1       Naveen          550
2       Anil            550
3       Naveen          550
4       Rajesh          550
```

Output in pivot table form

```
INVIGILATOR         AMOUNT
Anil                550
Naveen              1100
Rajesh              1100
```

Example 2:

```
# Pyhton script demonstrating the use of pivot_table() method
import pandas as pd
sale_dict = {
 'ITEM_NAME' : ["NOTEBOOK", "PEN","INKPEN","NOTEBOOK","PEN"],
    'AMOUNT' : [100,50,30,100,50],
    'QUANTITY' :[2,5,3,3,5]
        }
df = pd.DataFrame(sale_dict )
print(df)
pd.pivot_table(df, index = ['ITEM_NAME','AMOUNT','QUANTITY'], aggfunc='sum')
```

Output :

```
  ITEM_NAME AMOUNT QUANTITY
0  NOTEBOOK    100        2
1     PEN       50        5
2    INKPEN     30        3
3  NOTEBOOK    100        3
```

```
4       PEN             50          5
```

Output in pivot table form

```
ITEM_NAME     AMOUNT  QUANTITY

INKPEN          30          3

NOTEBOOK      100           2

                              3

PEN               50          5
```

Descriptive Statistics

After data collection, we generally use different ways to summarise the data. Python pandas provide different methods to generate descriptive statistics. Some of the common methods are:

min, max, mode, mean, count, sum, median

Example 1:

```
#Total sales per employee

import pandas as pd

monthlysale = { 'Salesman' : ["Akshit", "Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit", "Jaswant","Karan"],

   'Sales' : [1000,300,800,1000,500,60,1000,900,300,1000,900,50],

   'Quarter' :[1,1,1,2,2,2,3,3,3,4,4,4],

            'District': ['Kangra','Hamirpur','Kangra','Mandi','Hamirpur','Kangra','Kangra','Hamirpur','Mandi','Hamirpur','Hamirpur','Kangra']

      }

df = pd.DataFrame(monthlysale )

# Employee wise total sale:


pd.pivot_table(df, index = ['Salesman'], values = ['Sales'],aggfunc='sum')
```

Output:

```
Salesman   Sales
Akshit      4000
Jaswant    2600
Karan       1210
```

Example 2:

```
#Total sales Per District
import pandas as pd
monthlysale = { 'Salesman' : ["Akshit", "Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit", "Jaswant","Karan"],
    'Sales' : [1000,300,800,1000,500,60,1000,900,300,1000,900,50],
    'Quarter' :[1,1,1,2,2,2,3,3,3,4,4,4],
                'District': ['Kangra','Hamirpur','Kangra','Mandi','Hamirpur','Kangra','Kangra','Hamirpur','Mandi','Hamirpur','Hamirpur','Kangra']
        }
df = pd.DataFrame(monthlysale )
# District wise total sale:

pd.pivot_table(df, index = ['District'], values = ['Sales'],aggfunc='sum')
```

Output:

```
District     Sales
Hamirpur 3600
Kangra     2910
Mandi       1300
```

Example 3:

```
#Total sales per employee and per district
```

```
import pandas as pd
monthlysale = { 'Salesman' : ["Akshit", "Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit", "Jaswant","Karan"],
    'Sales' : [1000,300,800,1000,500,60,1000,900,300,1000,900,50],
    'Quarter' :[1,1,1,2,2,2,3,3,3,4,4,4],
                'District': ['Kangra','Hamirpur','Kangra','Mandi','Hamirpur','Kangra','Kangra','Hamirpur','Mandi','Hamirpur','Hamirpur','Kangra']
        }
df = pd.DataFrame(monthlysale )
# Employee and district wise total sale:

pd.pivot_table(df, index = ['Salesman','District'], values = ['Sales'],aggfunc='sum')
```

Output:

```
Salesman   District   Sales
Akshit   Hamirpur   1000
Kangra 2000
Mandi      1000
Jaswant   Hamirpur 2600
Karan      Kangra    910
Mandi      300
```

Example 4:

Maximum sales District wise

```
import pandas as pd
```

```
monthlysale = { 'Salesman' : ["Akshit", "Jaswant","Karan","Akshit",
"Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit",
"Jaswant","Karan"],
    'Sales' : [1000,300,800,1000,500,60,1200,900,1300,1000,900,50],
    'Quarter' :[1,1,1,2,2,2,3,3,3,4,4,4],
     'District':
['Kangra','Hamirpur','Kangra','Mandi','Hamirpur','Kangra','Kangra','Hami
rpur','Mandi','Hamirpur','Hamirpur','Kangra']
      }
df = pd.DataFrame(monthlysale )
# Maximum sale:
pd.pivot_table(df, index = ['District'], values = ['Sales'],aggfunc='max')
```

Output:

```
District     Sales
Hamirpur 1000
Kangra     1200
Mandi  1300
```

Example 5:

```
# Minimum sale District Wise

import pandas as pd
monthlysale = { 'Salesman' : ["Akshit", "Jaswant","Karan","Akshit",
"Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit",
"Jaswant","Karan"],
    'Sales' : [1000,300,800,1000,500,60,1000,900,300,1000,900,50],
    'Quarter' :[1,1,1,2,2,2,3,3,3,4,4,4],
```

```
            'District':
['Kangra','Hamirpur','Kangra','Mandi','Hamirpur','Kangra','Kangra','Hami
rpur','Mandi','Hamirpur','Hamirpur','Kangra']
    }
# Minimum Sale District wise:
pd.pivot_table(df, index = ['District'], values = ['Sales'],aggfunc='min')
```

Output:

```
District Sales
Hamirpur 300
Kangra    50
Mandi     300
```

Example 6:

```
# Median of sales Distirct wise
import pandas as pd
monthlysale = { 'Salesman' : ["Akshit", "Jaswant","Karan","Akshit",
"Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit",
"Jaswant","Karan"],
   'Sales' : [1000,300,800,1000,500,60,1000,900,300,1000,900,50],
   'Quarter' :[1,1,1,2,2,2,3,3,3,4,4,4],
            'District':
['Kangra','Hamirpur','Kangra','Mandi','Hamirpur','Kangra','Kangra','Hami
rpur','Mandi','Hamirpur','Hamirpur','Kangra']
    }
df = pd.DataFrame(monthlysale )
# Median of sales Distirct wise
pd.pivot_table(df, index = ['District'], values = ['Sales'],aggfunc='median')
```

Output:

```
District Sales
Hamirpur 900
Kangra     800
Mandi      650
```

Complete Example:

```
# Maximum , Minimum , Mean, Mode , Median and Count of sales Salesman wise
import pandas as pd
print("\n")
print ( "Dataframe of Values\n")
print("\n")
monthlysale = { 'Salesman' : ["Akshit", "Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit", "Jaswant","Karan"],
    'Sales' : [1000,300,800,1000,500,60,1000,900,300,1000,900,50],
    'Quarter' :[1,1,1,2,2,2,3,3,3,4,4,4],
                'District': ['Kangra','Hamirpur','Kangra','Mandi','Hamirpur','Kangra','Kangra','Hamirpur','Mandi','Hamirpur','Hamirpur','Kangra']
      }
df = pd.DataFrame(monthlysale )
# Use of mode() method of DataFrame
print("\n")
print ( "Use of mode() method of DataFrame")
print("\n")
print(df.mode())
print("\n")
print ( "Use of max,min,mean,median and count\n")
```

```
pd.pivot_table(df, index = ['Salesman'], values = ['Sales'],aggfunc=
['max','min','mean','median','count'])
```

Output:

```
Use of mode() method of DataFrame
  Salesman   Sales  Quarter  District
0   Akshit  1000.0        1 Hamirpur
1  Jaswant     NaN        2   Kangra
2    Karan     NaN        3      NaN
3      NaN     NaN        4      NaN

Use of max, min, mean, median and count
max  min  mean      median   count
Sales     Sales     Sales     Sales     Sales
Salesman
Akshit    100010001000.0      10004
Jaswant   900  300  650.0      700  4
Karan     800  50   302.5      180  4
```

Aggregation of DataFrame or Sequences

It is the process of turning the values of a dataset into one single value. The most common method to perform aggregation are max, min, sum,count. We have already covered all of these function in earlier examples.

Histogram using Python pandas :

Histogram is a diagram consisting of rectangles whose area is proportional to the frequency of a variable and whose width is equal to the class interval.

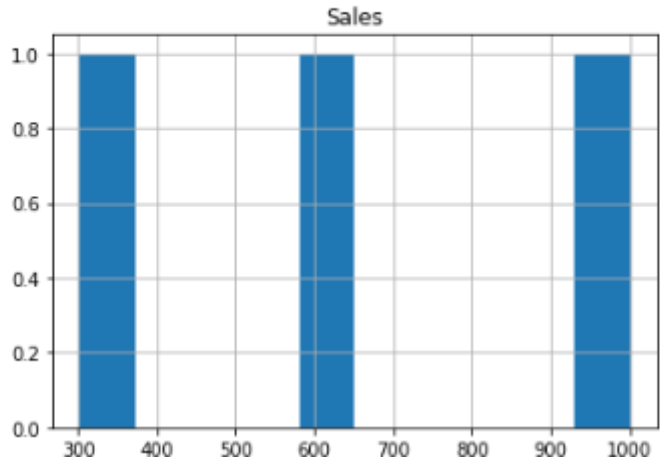
```
# Use of Histogram and hist() method

import pandas as pd
```

```
print("\n")
print ( "Dataframe of Values\n")
monthlysale = { 'Salesman' : ["Akshit", "Jaswant","Karan","Akshit",
"Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit",
"Jaswant","Karan"],
    'Sales' : [1000,300,800,1000,500,60,1000,900,300,1000,900,50],
    'Quarter' :[1,1,1,2,2,2,3,3,3,4,4,4],
                'District':
['Kangra','Hamirpur','Kangra','Mandi','Hamirpur','Kangra','Kangra','Hami
rpur','Mandi','Hamirpur','Hamirpur','Kangra']
        }
df = pd.DataFrame(monthlysale )
print(df)
print("\n")
print ( "Use of Histogram hist() method\n")
pd.pivot_table(df, index = ['Salesman'], values = ['Sales']).hist()
```

Output:

```
Dataframe of Values

   Salesman  Sales  Quarter  District
0    Akshit   1000        1    Kangra
1   Jaswant    300        1  Hamirpur
2     Karan    800        1    Kangra
3    Akshit   1000        2     Mandi
4   Jaswant    500        2  Hamirpur
5     Karan     60        2    Kangra
6    Akshit   1000        3    Kangra
7   Jaswant    900        3  Hamirpur
8     Karan    300        3     Mandi
9    Akshit   1000        4  Hamirpur
10  Jaswant    900        4  Hamirpur
11    Karan     50        4    Kangra

Use of Histogram hist() method
```

Out[35]:
```
array([[<matplotlib.axes._subplots.AxesSubplot object at 0x7ff2e5932198>]],
      dtype=object)
```

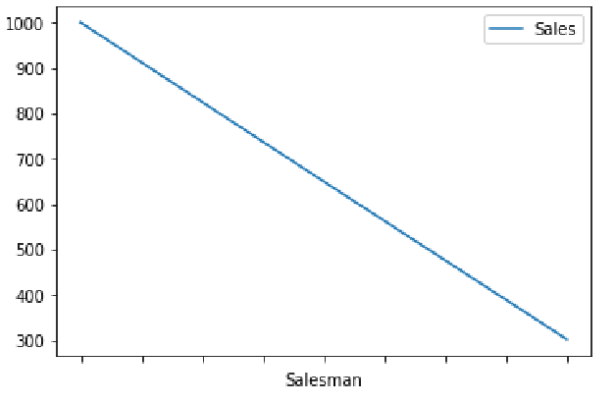



```
# Use of Histogram and plot() method

import pandas as pd

print("\n")

print ( "Dataframe of Values\n")

monthlysale = { 'Salesman' : ["Akshit", "Jaswant","Karan","Akshit",
"Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit",
"Jaswant","Karan"],

    'Sales' : [1000,300,800,1000,500,60,1000,900,300,1000,900,50],

    'Quarter' :[1,1,1,2,2,2,3,3,3,4,4,4],
```

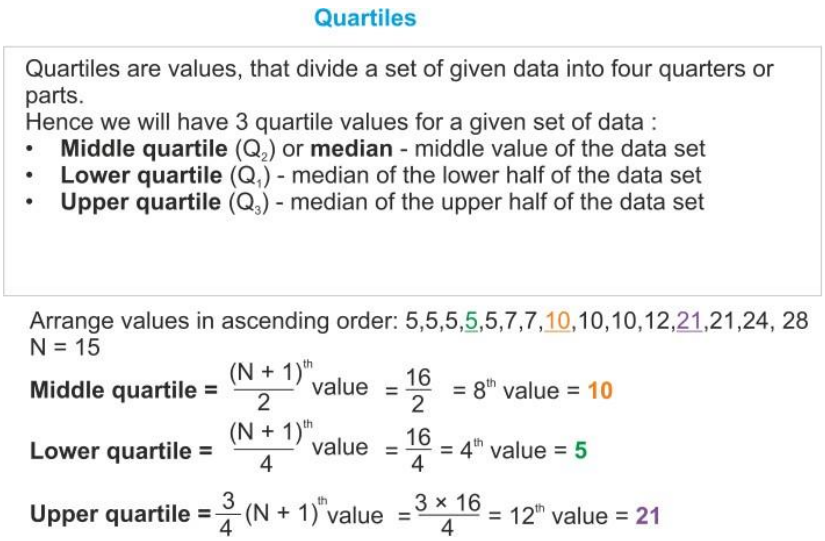
```
            'District':
['Kangra','Hamirpur','Kangra','Mandi','Hamirpur','Kangra','Kangra','Hamirpur','Mandi','Hamirpur','Hamirpur','Kangra']
    }
df = pd.DataFrame(monthlysale )
print(df)
print("\n")
print ( "Use of Histogram plot() method\n")
pd.pivot_table(df, index = ['Salesman'], values = ['Sales']).plot()
```

Output:

```
Dataframe of Values

   Salesman  Sales  Quarter  District
0    Akshit   1000        1    Kangra
1   Jaswant    300        1  Hamirpur
2     Karan    800        1    Kangra
3    Akshit   1000        2     Mandi
4   Jaswant    500        2  Hamirpur
5     Karan     60        2    Kangra
6    Akshit   1000        3    Kangra
7   Jaswant    900        3  Hamirpur
8     Karan    300        3     Mandi
9    Akshit   1000        4  Hamirpur
10  Jaswant    900        4  Hamirpur
11    Karan     50        4    Kangra

Use of Histogram plot() method

Out[2]: <matplotlib.axes._subplots.AxesSubplot at 0x7ff7d8271588>
```



Quantile



Variance Function in Python pandas

var() – Variance Function in python pandas is used to calculate variance of a given set of numbers, Variance of a Series , DataFrame etc.

```
# Use of Quantile and Variance Method using Series Object
import pandas as pd
# Create a List of Values
marks = [ 34,76,45,90,32,56,93,56,24,12,54,10]
# Soritng of Listy
marks.sort()
print ( "Create a Series from the List values\n")
marks_series=pd.Series(marks)
print(marks_series)

print("\n")
print ( "Q1 , Q2 , Q3 and 100th  Quantiles \n")
print("Q2 quantile of marks_series : ",marks_series.quantile(.50))
```

```
print("Q1 quantile of marks_series : ",marks_series.quantile(.25))
print("Q3 quantile of marks_series : ",marks_series.quantile(.75))
print("100th quantile of marks_series : ",marks_series.quantile(.1))

# Calculate the variance of Series\n")
print("\nVariance of marks_series : ",marks_series.var())
```

Output:

```
Create a Series from the List values
0    10
1    12
2    24
3    32
4    34
5    45
6    54
7    56
8    56
9    76
10    90
11    93
dtype: int64
Q1 , Q2 , Q3 and 100th Quantiles
Q2 quantile of marks_series : 49.5
Q1 quantile of marks_series : 30.0
Q3 quantile of marks_series : 61.0
100th quantile of marks_series : 13.200000000000001
```

```
Variance of marks_series : 773.7272727272727
100th quantile of marks_series : 13.200000000000001
```

Sorting of DataFrame:

```
# Use of Sorting method with DataFrame
import pandas as pd


print("\n")
print ( "Dataframe of Values\n")
monthlysale = { 'Salesman' : ["Akshit", "Jaswant","Karan","Akshit",
"Jaswant","Karan","Akshit", "Jaswant","Karan","Akshit",
"Jaswant","Karan"],
    'Sales' : [1000,300,800,1000,500,60,1000,900,300,1000,900,50]
      }
df = pd.DataFrame(monthlysale )
print(df)
print("\n")
print ( "Sorting of DataFrame using Sales column in Descending
order\n")
sr=df.sort_index(ascending=False)
print(sr)
```

Output:

```
Dataframe of Values
   Salesman Sales
0    Akshit   1000
1   Jaswant    300
2     Karan    800
```

3 Akshit 1000

4 Jaswant 500

5 Karan 60

6 Akshit 1000

7 Jaswant 900

8 Karan 300

9 Akshit 1000

10 Jaswant 900

11 Karan 50

Sorting of DataFrame using Sales column in Descending order

Salesman Sales

11 Karan 50

10 Jaswant 900

9 Akshit 1000

8 Karan 300

7 Jaswant 900

6 Akshit 1000

5 Karan 60

4 Jaswant 500

3 Akshit 1000

2 Karan 800

1 Jaswant 300

0 Akshit 1000

To Be Continue .....

Surface Chemistry

- Adsorption: The accumulation of a molecular species at the surface rather than in the bulk of a solid or liquid is termed adsorption.
- Adsorbate: The substance which is being adsorbed on the surface of another substance is called adsorbate.
- Adsorbent: The substance present in bulk on the surface of which adsorption occurs is called adsorbent.
- Desorption: The process of removing an adsorbed substance from a surface on which it is adsorbed is called desorption.
- Absorption: It is the phenomenon in which a substance is uniformly distributed all over the surface.
- Differences between adsorption and absorption

Absorption	Adsorption
(i) It is the phenomenon in which a substance is uniformly distributed throughout the bulk of the solid.	(i) The accumulation of molecular species at the surface rather than in the bulk of a solid or liquid is termed adsorption.
(ii) It is a bulk phenomenon.	(ii) It is a surface phenomenon.
(iii) The concentration is uniform throughout the bulk of the solid.	(iii) The concentration of the adsorbate increases only at the surface of the adsorbent.

- Sorption: When adsorption and absorption occur simultaneously, it is called sorption.
- Enthalpy or heat of adsorption: Adsorption generally occurs with release in energy, i.e. it is exothermic in nature. The enthalpy change for the adsorption of one mole of an adsorbate on the surface of adsorbent is called enthalpy or heat of adsorption.
- Types of adsorption:
  - Physical adsorption or physisorption: If the adsorbate is held on a surface of adsorbent by weak van der Waals' forces, then the adsorption is called physical adsorption or physisorption.
  - Chemical adsorption or chemisorption: If the forces holding the adsorbate are as strong as in chemical bonds, then the adsorption process is known as chemical adsorption or chemisorption.
- Differences between physical and chemical adsorption

Physical adsorption (Physisorption)	Chemical adsorption (Chemisorption)
• It is non-specific.	• (i) It is highly specific.
• It is reversible.	• (ii) It is irreversible.
• The amount of gas depends on the nature of gas, i.e. easily liquefiable gases such as NH_3 and CO_2 are adsorbed to a greater extent than H_2 and He. Higher the critical temperature of the gas, more will be the extent of adsorption.	• (iii) The amount of gas adsorbed is not related to critical temperature of the gas.
• The extent of adsorption increases with increase in surface area, e.g. porous and finely divided metals are good	• (iv) It also increases with increase in surface area.

adsorbents.	
• There are weak van der Waals' forces of attraction between adsorbate and adsorbent.	• (v) There is a strong force of attraction similar to a chemical bond.
• It has low enthalpy of adsorption • (20–40 kJ mol^{-1}).	• (vi) It has high enthalpy of adsorption (80 –240 kJ mol^{-1}).
• Low temperature is favourable.	• (vii) High temperature is favourable.
• No appreciable activation energy is needed.	• (viii) High activation energy is sometimes needed.
• It forms multimolecular layers.	• (ix) It forms unimolecular layers.

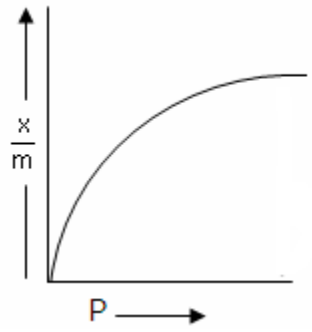
- Factors affecting adsorption of gases on solids:
  - Nature of adsorbate: Physical adsorption is non-specific in nature, and therefore, every gas gets adsorbed on the surface of any solid to a lesser or greater extent. However, easily liquefiable gases such as NH_3, HCl, CO_2 etc. which have higher critical temperatures are absorbed to a greater extent, whereas H_2, O_2, N_2 etc. are adsorbed to a lesser extent. Chemical adsorption is highly specific; therefore, a gas gets adsorbed on a specific solid only if it enters into chemical combination with it.
  - Nature of adsorbent: Activated carbon, metal oxides such as aluminium oxide, silica gel and clay are commonly used adsorbents. Their specific adsorption properties depend on pores.
  - Specific area of the adsorbent: The greater the specific area, more will be the extent of adsorption. Therefore, porous or finely divided forms of adsorbents adsorb larger quantities of adsorbate. The pores should be large enough to allow the gas molecules to enter.
  - Pressure of the gas: Physical adsorption increases with increase in pressure.
- Adsorption isotherm: The variation in the amount of gas adsorbed by the adsorbent with pressure at constant temperature can be expressed by a curve termed adsorption isotherm.
- Freundlich adsorption isotherm: The relationship between $\frac{x}{m}$ and the pressure of the gas at constant temperature is called adsorption isotherm and is given by

$$\frac{x}{m} = k P^{1/n} \quad (n > 1)$$

where x is the mass of the gas adsorbed on mass m of the adsorbent and the gas at a particular temperature.

k and n depend on the nature of the gas and the solid.

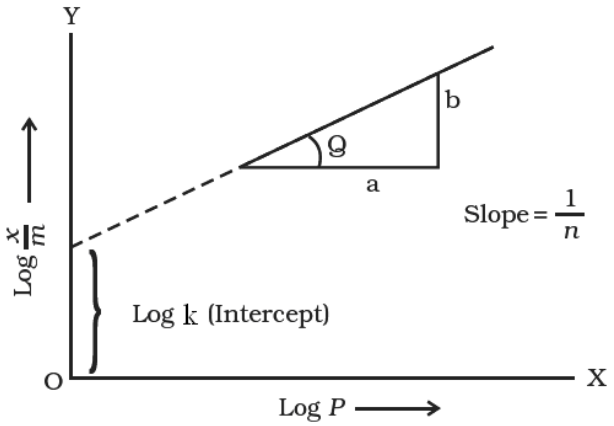
$\frac{x}{m}$ first increases with increase in pressure at low pressure but becomes independent of pressure at high pressure.



Taking logarithm on both sides, we get

$$\log \frac{x}{m} = \log k + \frac{1}{n}\log P$$

If we plot a graph between log $\frac{x}{m}$ and log P, we get a straight line.



The slope of the line is $\frac{1}{n}$, and the intercept will be equal to log k.

- Catalyst: Substances which alter the rate of a chemical reaction and themselves remain chemically and quantitatively unchanged after the reaction are known as catalysts, and the phenomenon is known as catalysis.
- Promoters: Substances which increase the activity of a catalyst are called promoters. Example: Mo is a promoter, whereas Fe is a catalyst in the Haber Process.

  $N_2(g) + 3H_2(g) \underset{Mo(s)}{\overset{Fe(s)}{\rightleftharpoons}} 2NH_3(g)$
- Catalytic poisons (inhibitors): Substances which decrease the activity of a catalyst are called catalytic poisons or inhibitors. Example: Arsenic acts as a catalytic poison in the manufacture of sulphuric acid by 'contact process.'
- Types of catalysis:
  - Homogeneous catalysis: When the catalyst and the reactants are in the same phase, this kind of catalytic process is known as homogeneous catalysis.
  - Heterogeneous catalysis: When the catalyst and the reactants are in different phases, the catalytic process is said to be heterogeneous catalysis.
- Activity of a catalyst: The ability of a catalyst to increase the rate of a chemical reaction is called the activity of a catalyst.
- Selectivity of a catalyst: It is the ability of a catalyst to direct a reaction to yield a particular product (excluding others).

  Example:

  CO and H_2 react to form different products in the presence of different catalysts as follows:

  a) $CO(g) + 3H_2(g) \xrightarrow{Ni} CH_4(g) + H_2O(g)$

  b) $CO(g) + 2H_2(g) \xrightarrow{Cu/ZnO-Cr_2O_3} CH_3OH(g)$

  c) $CO(g) + H_2(g) \xrightarrow{Cu} HCHO(g)$
- Shape-selective catalysis: The catalysis which depends on the pore structure of the catalyst and the molecular size of reactant and product molecules is called shape-selective catalysis. Example: Zeolites are shape-selective catalysts because of their honey-comb structure.

- Enzymes: Enzymes are complex nitrogenous organic compounds which are produced by living plants and animals. They are actually protein molecules of high molecular mass. They are biochemical catalysts.
- Steps of enzyme catalysis:
  - Binding of an enzyme to a substrate to form an activated complex.

    $E + S \rightleftharpoons ES^{\neq}$
  - ii) Decomposition of the activated complex to form product.
    - $E\,S^{\neq} \rightarrow E + P$
- Characteristics of enzyme catalysis:
  - They are highly efficient. One molecule of an enzyme can transform 10^6 molecules of reactants per minute.
  - They are highly specific in nature. Example: Urease catalyses hydrolysis of urea only.
  - They are active at optimum temperature (298–310 K). The rate of enzyme-catalysed reaction becomes maximum at a definite temperature called the optimum temperature.
  - They are highly active at a specific pH called optimum pH.
  - Enzymatic activity can be increased in the presence of coenzymes which can be called promoters.
  - Activators are generally metal ions Na^+, Co^{2+} and Cu^{2+} etc. They weakly bind to an enzyme and increase its activity.
  - Influence of inhibitors (poison): Enzymes can also be inhibited or poisoned by the presence of certain substances.

- Distinction between true solution, colloids and suspension.

True solution	Colloids	Suspension
It is homogeneous.	It appears to be homogeneous but is actually heterogeneous.	It is heterogeneous.
The diameter of the particles is less than 1 nm.	The diameter of the particles is 1 nm to 1000 nm.	The diameter of the particles is larger than 1000 nm.
It passes through filter paper.	It passes through ordinary filter paper but not through ultra-filters.	It does not pass through filter paper.
Its particles cannot be seen under a microscope.	Its particles can be seen by a powerful microscope due to the scattering of light.	Its particles can be seen even with the naked eye.

- Colloids: A colloid is a heterogeneous system in which one substance is dispersed as very fine particles in another substance called the dispersed medium.
- Dispersed phase: The substance which is dispersed as very fine particles is called the dispersed phase.
- Dispersion medium: The substance present in larger quantity is called the dispersion medium.
- Classification of colloids on the basis of the physical state of dispersed phase and dispersion medium.

Dispersed phase	Dispersion medium	Name	Examples
Solid	Gas	Aerosol	Smoke, dust
Solid	Liquid	Sol	Paints
Solid	Solid	Solid sol	Coloured gem stones

Liquid	Solid	Gel	Jellies, cheese
Liquid	Liquid	Emulsion	Milk, hair cream
Liquid	Gas	Aerosol	Fog, mist, cloud
Gas	Solid	Solid sol	Pumice stone, foam rubber
Gas	Liquid	Foam	Whipped cream, froth

- Classification of colloids on the basis of nature of interaction between dispersed phase and dispersion medium:

Lyophobic sols	Lyophilic sols
These colloids are liquid hating.	These colloids are liquid loving.
In these colloids, the particles of the dispersed phase have no affinity for the dispersion medium.	In these colloids, the particles of the dispersed phase have great affinity for the dispersion medium.
They are not stable.	They are stable.
They can be prepared by mixing substances directly.	They cannot be prepared by mixing substances directly. They are prepared only by special methods.
They need stabilising agents for their preservation.	They do not need stabilising agents for their preservation.
They are irreversible sols.	They are reversible sols.

- Classification of colloids on the basis of types of particles of the dispersed phase:
  - Multimolecular colloids: The colloids in which the colloidal particles consist of aggregates of atoms or small molecules. The diameter of the colloidal particle formed is less than 1 nm.
  - Macromolecular colloids: The colloids in which the dispersed particles are themselves large molecules (usually polymers). Because these molecules have dimensions comparable to those of colloid particles, their dispersions are called macromolecular colloids. Examples: Proteins, starch and cellulose form macromolecular colloids.
  - Associated colloids (micelles): Colloids which behave as normal, strong electrolytes at low concentrations but show colloidal properties at higher concentrations due to the formation of aggregated particles of colloidal dimensions.
- Kraft Temperature (T_k): Micelles are formed only above a certain temperature called Kraft temperature.
- Critical Micelle Concentration (CMC): Micelles are formed only above a particular concentration called critical micelle concentration.
- Soaps: Soaps are sodium or potassium salts of higher fatty acids. Example: Sodium stearate $CH_3(CH_2)_{16}COO^-Na^+$
- Methods of preparation of colloids:
  - Chemical methods: Colloids can be prepared by chemical reactions leading to the formation of molecules. These molecules aggregate leading to the formation of sols.
  - Electrical disintegration or Bredig's arc method: In this method, an electric arc is struck between the electrodes of the metal immersed in the dispersion medium. The intense heat produced vaporises the metal, which then condenses to form particles of colloidal size.
  - Peptisation: Peptisation is defined as the process of converting a precipitate into a colloidal sol by shaking it with a dispersion medium in the presence of a small amount of an electrolyte. The electrolyte used for this purpose is called a peptising agent.
- Purification of colloids:
  - Dialysis: It is a process of removing a dissolved substance from a colloidal solution by diffusion through a suitable membrane.

- Electrodialysis: The process of dialysis is quite slow. It can be made faster by applying an electric field if the dissolved substance in the impure colloidal solution is only an electrolyte.
- Ultrafiltration: Ultrafiltration is the process of separating the colloidal particles from the solvent and soluble solutes present in the colloidal solution by specially prepared filters, which are permeable to all substances except the colloidal particles.
- Ultracentrifugation: In this process, the colloidal solution is taken in a tube which is placed in an ultracentrifuge. On rotating the tube at very high speed, the colloidal particles settle down at the bottom of the tube and the impurities remain in solution. The settled particles are mixed with the dispersion medium to regenerate the sol.

- Properties of colloids:
  - Colour: The colour of a colloidal solution depends on the wavelength of light scattered by the colloidal particles, which in turn depend on the nature and size of particles. The colour also depends on the manner in which light is received by the observer.
  - Brownian movement: Colloidal particles move in a zigzag path. This type of motion is due to colliding molecules of dispersion medium constantly with colloidal particles.
  - Colligative properties: The values of colligative properties (osmotic pressure, lowering in vapour pressure, depression in freezing point and elevation in boiling point) are of small order as compared to values shown by true solutions at the same concentrations.
  - Tyndall effect: The scattering of a beam of light by colloidal particles is called Tyndall effect. The bright cone of light is called the Tyndall cone.
  - Charge on colloidal particles: Colloidal particles always carry an electric charge. The nature of this charge is the same on all the particles in a given colloidal solution and may be either positive or negative.

Positively charged colloids	Negatively charged colloids
Hydrated metallic oxides such as $Fe_2O_3.xH_2O$, $Cr_2O_3.xH_2O$, $Al_2O_3.xH_2O$	Metallic sulphides such as As_2S_3, Sb_2S_3 sols
Basic dye stuff such as malachite green, methylene blue sols	Acid dye stuff such as eosin, methyl orange, Congo red sols
Haemoglobin (blood)	Starch sol, gum, gelatine, clay, charcoal, egg albumin etc.

  - Helmholtz electrical double layer: When the colloidal particles acquire a negative or positive charge by selective adsorption of one of the ions, they attract counter ions from the medium forming a second layer. The combination of these two layers of opposite charges around colloidal particles is called the Helmholtz electrical double layer.
  - Electrokinetic potential or zeta potential: The potential difference between the fixed layer and the diffused layer of opposite charges is called electrokinetic potential or zeta potential.
  - Electrophoresis: The movement of colloidal particles under an applied electric potential is called electrophoresis.
  - Coagulation or precipitation: The process of settling of colloidal particles as precipitate is called coagulation.

Hardy–Schulze rules:

i) Oppositely charged ions are effective for coagulation.
ii) The coagulating power of an electrolyte increases with increase in charge on the ions used for coagulation.

Example:

$Al^{3+} > Ba^{2+} > Na^{+}$ for negatively charged colloids

$[Fe(CN)_6]^{4-} > PO_4^{3-} > SO_4^{2-} > Cl^{-}$ for positively charged colloids

- Types of emulsions:
  - Water dispersed in oil: When water is the dispersed phase and oil is the dispersion medium. Example: Butter
  - Oil dispersed in water: When oil is the dispersed phase and water is the dispersion medium. Example: Milk
- Emulsification: The process of stabilising an emulsion by an emulsifier.
- Emulsifying agent: The substances which are added to stabilise the emulsions are called emulsifying agents or emulsifiers. Examples: Soaps, gum
- Demulsification: The process of breaking an emulsion into its constituent liquids is called demulsification by freezing, boiling, centrifugation or some chemical methods.

East Point School
Study Notes
Class: - XII (2021-22)
SOCIAL SCIENCE – HISTORY
Study Notes
Date: 22/08/2021

CHAPTER- 11
THE REBELS AND THE RAJ

- In Meerut cantonment, 10th May 1857, the sepoys broke out in mutiny which spread to infantry and cavalry and then in the city. The people of the city joined the sepoys.

- On 11th May, these sepoys reached the Red Fort in Delhi and convinced the Mughal Emperor, Bahadur Shah Zafar to lead the mutiny.

- When the news reached Delhi that Bahadur Shah had supported the rebellion, mutiny spread to the Gangetic valley and further to the west of Delhi.

- With specific signals like firing of the evening gun and sounding of the bugie, the sepoys began their activities like, they seized the British arms and plundered the treasury, burnt government buildings records etc.

- Revolt spread when ordinary people joined it. Money lenders and rich people were attacked as they were considered allies of the British.

- During the months of May and June, British could not do anything and were keen to save themselves. The planning and co-ordination of the sepoys was well versed as they lived in the same lines and had the same lifestyles. They belonged to same caste.

- The rebels made the Mughal ruler lead the Revolt. The Mughal Emperor, Rani of Jhansi, Successor of Peshwa Baji Rao, Nana Saheb and also the Zamindar Kunwar Singh in Arrah of Bihar joined them.

- Rumours and prophecies played a great role in mobilising people. There was 4 rumour that the British Government was conspiring to corrupt the caste and religion of Muslims and Hindus. Sepoys felt that if they would bite the bullets with their mouth, it would be against their religions referring to the cartridges of Enfield Rifles which were given to them.

- There was another rumour that the British had mixed the bone dusts of pigs and cows into the flour which was sold in the markets of towns and cantonments, which was why the people refused to consume the flour

- It was suspected that the British wanted to convert the Indians into Christianity.

- Under Lord William Bentinck, the British government introduced western education and western institutions. They passed laws to abolish the Sati custom (1829) and passed the law for the remarriage of Hindu widows.

East Point School
Study Notes
Class- 12th (2021-22)
Biology

CHAPTER 6- MOLECULAR BASIS OF INHERITANCE

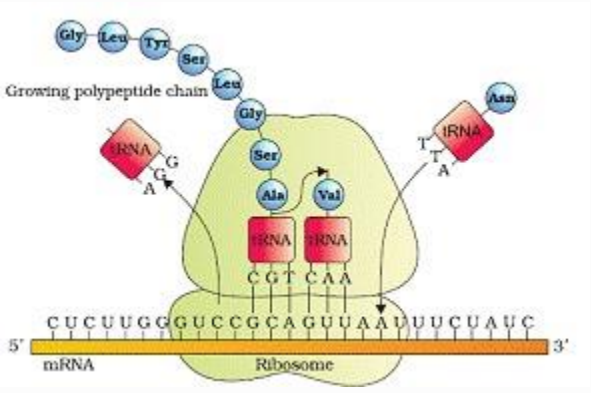
Translation process: Translation is the process of polymerisation of amino acids to form a polypeptide. The order and sequence of amino acids are defined by the sequence of bases in the mRNA. Amino acids are joined by peptide bonds. It involved following steps-

a) Charging of t-RNA.

b) Formation of peptide bonds between two charged tRNA.

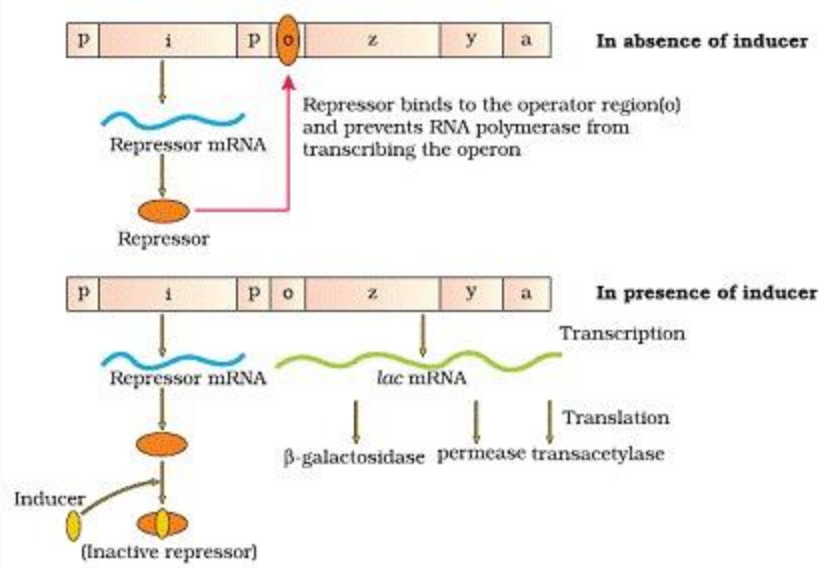
• The start codon is AUG. An mRNA has some additional sequence that are not translated called untranslated region (UTR).

• For initiation ribosome binds to mRNA at the start codon. Ribosomes moves from codon to codon along mRNA for elongation of protein chain. At the end release factors binds to the stop codon, terminating the translation and release of polypeptide form ribosome.



Regulation of Gene Expression:
All the genes are not needed constantly. The genes needed only sometimes are called regulatory genes and are made to function only when required and remain non-functional at other times. Such regulated genes, therefore required to be switched 'on' or 'off' when a particular function is to begin or stop.

The Lac Operon
Lac operon consists of one regulatory gene (i) and three structural genes (y,z and a). Gene i code for the repressor of the lac operon. The z gene code for beta-galactosidase, that is responsible for hydrolysis of disaccharide, lactose into monomeric units, galactose and glucose. Gene y code for permease, which increases permeability of the cell. Gene a encode for transacetylase.



Lactose is the substrate for enzyme beta-galactosidase and it regulates switching on and off of the operon, so it is called inducer.

Regulation of Lac operon by repressor is referred as negative regulation. Operation of Lac operon is also under the control of positive regulation.

Human Genome Project was launched in 1990 to find out the complete DNA sequence of human genome using genetic engineering technique and bioinformatics to isolate and clone the DNA segment for determining DNA sequence.

Goal of HGP-
a) Identify all the genes (20,000 to 25,000) in human DNA.
b) Determine the sequence of the 3 billion chemical base pairs that make up human DNA.
c) Store this information in data base.
d) Improve tools for data analysis.
e) Transfer related information to other sectors.
f) To address the legal, ethical and social issues that may arise due to project.

• The project was coordinated by the US Department of Energy and the National Institute of health.
• The method involved the two major approaches- first identifying all the genes that express as RNA called Express sequence tags(EST).The second is the sequencing the all set of genome that contained the all the coding and non-coding sequence called sequence Annotation.

Salient features of Human Genome:
a) The human genome contains 3164.7 million nucleotide bases.
b) The average gene consists of 3000 bases, but sizes vary greatly, with the largest known human gene being dystrophin at 2.4 million bases.
c) Less than 2 per cent of the genome codes for proteins.
d) Repeated sequences make up very large portion of the human genome.
e) Repetitive sequences are stretches of DNA sequences that are repeated many times, sometimes

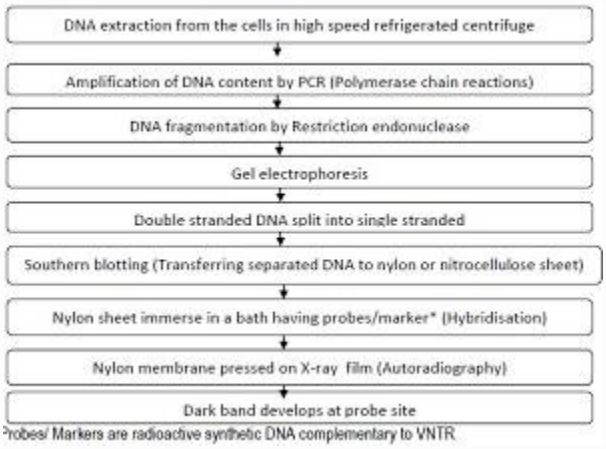
hundred to thousand times.
f) Chromosome 1 has most genes (2968), and the Y has the fewest (231).
g) Scientists have identified about 1.4 million locations where single base DNA differences (SNPs – single nucleotide polymorphism) occur in humans.

DNA finger printing is a very quick way to compare the DNA sequence of any two individual. It includes identifying differences in some specific region in DNA sequence called as repetitive DNA because in this region, a small stretch of DNA is repeated many times.

Depending upon the base composition, length of segment and number of repetitive units satellite DNA is classified into many categories.

Polymorphism in DNA sequence is the basis for genetic mapping of human genome as well as fingerprinting.

The technique of fingerprinting was initially developed by Alec Jeffrey. He used a satellite DNA as probe to so high polymorphism was called Variable Number of Tendon Repeats (VNTR).



East Point School

Study Notes

Class: - XII

Political science

End of Bipolarity

Soviet System

- The Union of Soviet Socialist Republics (USSR) came into being after the Socialist Revolution in Russia in 1917. The revolution was inspired by the ideals of socialism and the need for an egalitarian society as opposed to capitalism.
- After the Second World War, the East European countries that the Soviet army had liberated from the fascist forces came under the control of the USSR.
- There was change in the economic and political system of the USSR. Then the Soviet economy became more developed than the rest of the world except the US.
- However, the Soviet system became very bureaucratic and authoritarian. It made life very difficult for its citizens.
- In the arms race, the Soviet Union managed to match the US from time to time, but at great cost.

Gorbachev and the Disintegration of the USSR

- Mikhail Gorbachev, who had become General Secretary of the Communist Party of the Soviet Union in 1985, sought to reform the system. He introduced economic and political reform policies of perestroika (restructuring) and glasnost (openness). But later his policies were criticised.
- A coup took place in 1991 that was encouraged by Communist Party hardliners. The people did not want the old-style rule of the Communist Party and wanted freedom.
- Russia, Ukraine and Belarus, the three major republics of the USSR, declared in December 1991 that the Soviet Union was disintegrated.;
- Capitalism and democracy were adopted as the basis for the post Soviet republics.

Reasons for the Soviet Union Disintegration
There are several reasons which led to the collapse of the Soviet Union. These were

- Internal weaknesses of Soviet political and economic institutions failed to meet the aspirations of the people.
- The economy of the Soviet Union became stagnant. The Soviet economy used much of its resources in maintaining a nuclear and military arsenal. The Soviet Union too became stagnant due to rampant corruption, the unwillingness to allow more openness in government, and the centralisation of authority in a vast land.
- A section of the society was not happy with the reforms of Gorbachev. It was believed that the reforms introduced by Gorbachev were at a very slow pace.
- Another reason for the collapse of USSR was the rise of nationalism and the desire for sovereignty within various republics including Russia and the Baltic republics

Consequences of Disintegration
There are many consequences of the disintegration of USSR. They are as follows:

- It led to the end of Cold War confrontations. There was no dispute of Socialist ideology and Capitalist ideology.
- Power relations in world politics changed and thus it led to change in the relative influence of ideas and institutions.
- The US became the sole superpower which also backed the capitalist economy making it the dominant economic system internationally.
- The end of the Soviet bloc paved way for the emergence of many new countries. All these countries had their own independent aspirations and choices.
- The international system saw many new players' emerge, each with its own identity, interests and economic and political difficulties.

Shock Therapy in Post-Communist Regimes

- The model of transition in Russia, Central Asia and East Europe from an authoritarian socialist system to a democratic capitalist system which was influenced by the World Bank and the IMF came to beknown as 'Shock Therapy'.

- This process of transition was due to the Collapse of Communism.

- There was a need to make a total shift to a capitalist economy which meant rooting out completely any structures evolved during the Soviet period.
- Shock therapy also involved a drastic change in the external orientation of these economics.
- It also involved a break up of the existing .
  trade alliances among the countries of the Soviet bloc.

Consequences of Shock Therapy

- The shock therapy brought ruin to the economies and disaster upon the people of the entire region.
- The value of the Russian currency 'Ruble' declined dramatically. People lost all their savings due to high rate of inflation.
- The government withdrew subsidies which pushed large sections of the people into poverty. The middle classes were pushed to the periphery of society.
- The construction of democratic institutions was not given the same attention and priority as the demands of economic transformation.

- Most of these economies, especially Russia, started reviving in 2000, 10 years after their independence. The reason for the revival was the export of natural resources like oil, natural gas and minerals.

Tensions and Conflicts in Former Soviet Republics

- There were tensions and conflicts in most of the former Soviet republics and many have had civil wars and insurgencies.
- In Russia, two republics, Chechnya and Dagestan have had violent secessionist movements.
- Tajikistan witnessed a civil war for almost 10 years till 2001. The region had many sectarian conflicts.
- Central Asia too become a zone of competition between outside powers and oil companies.
- Czechoslovakia was divided into two, the Czechs and the Slovaks thus forming independent countries.
- Yugoslavia broke apart with several provinces like Croatia, Slovenia and Bosnia and Herzegovina declaring independence.

India and Post-Communist Countries

- India maintained a cordial relationship with all the post-communist countries. The strongest relation of India is still with Russia.
- Indo-Russian relation is an important aspect of India's foreign policy. Both the countries share a vision of a multipolar world order.
- India got benefits from Russia over issues like Kashmir, energy supplies, access to Central Asia, balancing its relations with China.
- Russia stands to benefit from this relationship because India is the second largest arms market for Russia. Both the countries have collaborated over many scientific projects.

FACTS THAT MATTER

1. The Socialist Revolution in Russia in 1917 gave birth to USSR with inspiration of socialism, ensure a minimum standard of living for all its citizens and also the government subsidised basic necessities and productive assets were owned and controlled by the state.

2. Russia was the only republic among fifteen republics who dominates everything and people in the region.

3. Soviet Union lagged behind the west in technology, infrastructure and could not fulfil political aspirations of people. Soviet invasion of Afghanistan in 1979 also weakened the system furthermore.

4. Mikhail Gorbachev, General Secretary of Communist Party of Soviet Union in 1985 initiated the policies of economic and political reforms to democratise the system which were opposed by leaders within communist party and contradictory view of people.

5. The people of republic had been fed up with old style rule of Soviet bloc and in Dec 1991, under the leadership of Boris Yeltsin (an elected leader), Russia, Ukraine and Baltics declared themselves independent.

6. The formation of Commonwealth of Independent States (CIS) came as a surprise and the exclusion of these states was resolved by making them founder members of the CIS.

7. Russia was accepted as successor state of Soviet Union by inheriting a Soviet seat in UN Security Council, who accepted all international treaties and commitments of Soviet Union and carried out some nuclear disarmament measures with the US.

8. Now Soviet Union had been disintegrated on the grounds to maintain nuclear and military arsenals, awareness of people of their backwardness than western capitalism as well as alienation of ordinary people who were exempted from any kind of privileges.

9. The rise of nationalism and the desire for sovereignty within republics like Russia, the Baltic Republics (Estonia, Latvia, Lithuania), Ukraine, Georgia and others proved to be the most immediate cause for disintegration of USSR.

10. Disintegration of USSR resulted into the end of Cold War confrontations, created dominant capitalist system, emerged many new states and the advantage was taken by Central Asian countries of their geographical locations by maintaining relations with Russia, the West, the US, China and others.

11. The process of transition from an authoritarian socialist system to a democratic capitalist system in Russia, Central Asia and East Europe was influenced by World Bank and IMF came to be known as Shock Therapy.

12. Shock Therapy involved privatisation of property, private firms emergence, complete switch over to free trade and Foreign Direct Investment, Financial opening up, Currency convertibility as well as break up of existing trade alliances among the countries of Soviet Bloc to maintain relations directly with the West.

13. Shock Therapy resulted in the largest garage sale in history, declined value of Russian Currency ‘Ruble’, due to inflation, food was imported, destroyed Old Social Welfare System, Migration of educated and intellectual manpower and disparities due to privatisation between rich and poor regions of Russia.

14. The constitution of newly democratic institutions was drafted in a hurry where strong executives appointed themselves as presidents due to weak Parliament and lack of independent judiciary as in Russia, Turkmenistan and Uzbekistan.

15. Russia revived in 2000 due to export of natural resources like oil, natural gas and minerals which were available in abundance in Azerbaijan, Kazakhstan, Russia, Turkmenistan and Uzbekistan. And from where these pipelines crossed, were paid on rent.

16. Most of the former Soviet Republics had civil wars and insurgencies as in Russia, two republics Chechnya and Dagestan had violent secessionist movements, in Central Asia. Civil War took place in Azerbaijan and Georgia. Czechoslovakia was also split into two. Even countries and provinces like Ukraine, Kyrgyzstan, and Georgia are fighting over river water leading to instability and making life difficult for ordinary people.

17. The Central Asian Republics were rich in hydrocarbon resources for economic benefit as Oil Companies and outside powers had a competition to exploit these natural resources. Also, the US approached them to hire bases and territories during wars in Iraq and Afghanistan.

18. Russia and India share a vision of multipolar world order, collective security, greater regionalism, negotiated settlements of international conflicts, on independent foreign policy and decision making through UN.

19. India is benefitted from Russia on issues of Kashmir, energy supplies, sharing information on international terrorism, access to Central Asia and balancing its relations with China. In return, Russia has also been benefitted from India on the ground of second largest arms market for Russia.

WORDS THAT MATTER

1. **Soviet System:** Soviet system was introduced after Russian Revolution in 1917 based on the principles of egalitarian society and planned economy controlled by the state.
2. **Socialist Bloc:** The east European countries were known as Socialist Bloc because these countries
3. were liberated from the fascist forces and their political and economic systems were based on this bloc only.
4. **Capitalist Economy:** In this economy, land and productive assets are owned and controlled by the Capitalists.

5. **Unipolar System:** Affairs at international level are dominated by only one superpower.
6. **Multipolar System:** Affairs at international level can not be dominated by one superpower only, instead group of countries play an important role.
7. **Egalitarian Society:** It believes that all people are equally important and should have the same rights and opportunities in life.
8. **Largest Garage Sale:** It was resulted due to Shock Therapy to undervalue the valuable industries of USSR to sell them at throwaway prices.
9. **Shock Therapy:** The model of transition from authoritarian socialist system to a democratic capitalist system in Russia, Central Asia and East Europe under the influence of the World Bank and IMF.

TIMELINE

- **March 1985** Mikhail Gorbachev electced as the General Secretary of the Communist Party of the Soviet Union; appoints Boris Yeltsin as the head of the Communist Party in Moscow; initiates a series of reforms in the Soviet Union.
- **1988** Independence movement begins in Lithuania; later spreads to Estonia and Latvia.
- **October 1989** Soviet Union declares that the Warsaw Pact members are free to decide their own future; Berlin Wall falls in November.
- **February 1990** Gorbachev strips the Soviet Communist Party of its 72-year long monopoly on power by calling on the Soviet Parliament (Duma) to permit multiparty politics.
- **March 1990** Lithuania becomes the first of the 15 Soviet republics to declare its independence.
- **June 1990** Russian parliament declares its dependence from the Soviet Union.
- **June 1991** Yeltsin, no longer in the Communist Party, becomes the President of Russia.
- **August 1991** The Communist Party hardliners stage an abortive coup against Gorbachev.
- **September 1991** Three Baltic republics of Estonia, Latvia and Lithuania becomes UN members (Later join NATO in March 2004).
- **December 991** Russia, Belarus and Ukraine decided to annul the 1992 Treaty on the creation of the USSR and establish the Commonwealth of Independent States (CIS); Armenia, Azerbaijan, Moldova, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan joined the CIS (Georgia joined later in 1993); Russia took ones the USSR seat in the United Nations.

- **25 December 1991** Gorbachev resigns as the President of the Soviet Union; the end of the Soviet Union.

East Point School
Class-12
Sub- Geography
Study Material
Date- 20.8.21

TRANSPORT AND COMMUNICATION

MODES OF TRANSPORT

LAND , WATER &AIR

LAND TRANSPORT: most of the transport is done over the land such

as man, animals, vehicles , pipelines

It is changed due to invention of steam engine, coal, petroleum .

revolution in transport system

ROAD

1. Most economical

2. Suitable for short distances

3. Suitable for rural areas and hilly areas

4. Cheapest means of transport

5. Supplementary to the other means of transport

6. Door to door service

7. Easy to construct and maintain

8. There are metalled and un-metalled roads

9. Not suitable during rainy season

10. Quality of roads depends on country

11. Developed countries have good roads

12. The total motorable road length is 15 million km 33% N. America

13. Highest road density is found in West Europe

14. Traffic flows; increased in recent years.

Problems of road ways

1. Lack of road side amenities

2. Congestion in cities

HIGH WAYS

 Connect distant places. 80meters wide separate traffic lanes bridges, flyovers and dual carriageways help for traffic flow

 Every city and port is connected with highways

 NORTH AMERICA: road density is 0.65 km per sq km

 Every place is within 20km from highway,

 cities located in the pacific ocean are well connected,

 trans Canadian highway links Vancouver in British Columbia to St. John city in the east.

 Pan American highway connects south America with north America

 Trans -continental Stuart highway connects Darwin with Alice springs

 Europe has highest no. of vehicles

 In Russia dense highway network is developed in the industrial region

 In china cities are connected with highways

 In India there are many highways connecting cities

 Border roads connect the countries and integrate the people

RAILWAYS

 Suitable for bulky goods, longer distances, high speed , cheap, it varies from country to country

 Types of gauges

 Broad gauge: 1.5 meters Standard gauge: 1.44m meter gauge : 1: 00 meter smaller gauges

 Commuter railways are very popular in In UK , USA Japan and India

 There are 13 lakh km of railways in the world

 Europe has densest network in the world

 They are double and multi tracked Belgium has highest density 1km/ 6.5 sq.km

industrial regions have highest density of railways

 Underground railways are important between Paris and London ex. Channel

tunnel operated by Euro tunnel group

 Most of the railways are found in Urals in Russia

 40% of rail network is found in North America

 In Canada railways are in public sector

 Australia has 40000 km of railways 25% is found in new south Wales

 In South America Rail network is found in Coffee Fazendas and pampas

 There is only one continental rail between Valparaiso and Buenos Aires

 Asia has highest density of rail network

 Africa has 40000 km of rail net work south Africa has alone 18000 km or rail

net work

The important routes are

1. Benguela railway through Angola to Katanga Zambia copper belt

2. Tanzania Railway from the Zambian copper belt to Dar-Es Salam on the coast

3. The railway through Botswana and Zimbabwe linking the landlocked states to the

Republic of South Africa

TRANSCONTINENTAL RAILWAYS

Run across the continent

Link two ends of the continent

Constructed for economic and political reasons

TRANS SIBERIAN RAIWAY

1. CONNECT St. Petersburg on the west Vladivostok in the east

2. pass through Moscow, Ufa Novosibirsk Irkutsk

3. longest with the length of 9332 km

4. double tracked and electrified

5. helped in connecting west markets to Asian region in the east

TRANS CANADIAN RAILWAY

1. 7050 KM long connect Halifax in the east, with Vancouver on the west coast

2. Connect Montreal, Ottawa Winnipeg Calgary

3. Constructed in 1886

4. Connect Quebec industrial region with wheat belt of prairie region

5. It also connects Winnipeg to thunder water way

6. This is Canada‟s important train route

7. Wheat and meat are important exports

THE UNION PACIFIC RAILWAY

1. Connect New York on the pacific coast with San Francisco on the west coast

2. Pass through Cleveland, Chicago, Omaha , Evans Ogden Sacramento

3. Important exports are ores, grain paper, chemicals and machinery

THE AUSTRALIAN TRANS CONTINENTAL RAILWAY

1. Run east west across southern part of Australia

2. Connect Sydney on the east to Perth on the west coast

3. Connect Kalgoorli, Broken Hill Port Augusta

4. Another major line connects from Adelaide and Alice Springs also joins with this line

THE ORIENT EXPRESS

1. Runs from Paris to Istanbul

2. Pass through Strasbourg , Munich, Vienna, Budapest and Belgrade

3. The travel time from London to Istanbul reduced to 96 hours against 10 days

4. The exports are cheese, bacon, oats, wine, fruits, and machinery

5. There is a proposal to connect Istanbul with Bangkok through Iran, Pakistan, India , Bangladesh and Myanmar

East Point School

Study Notes

Class: - XII (2021-22)

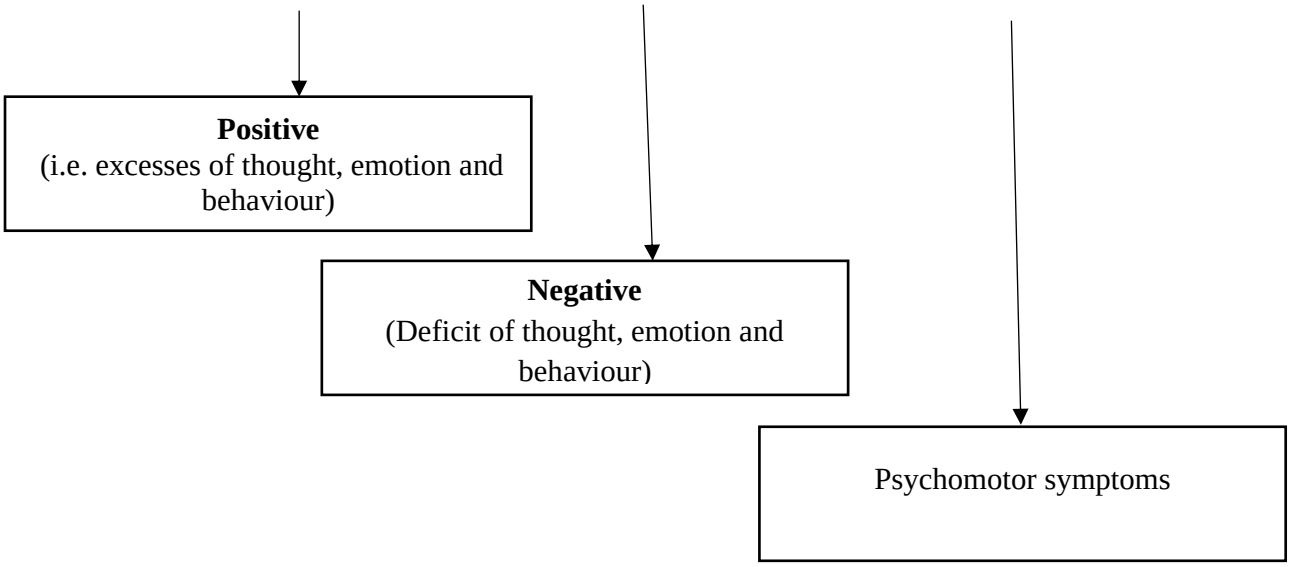
PSYCHOLOGY

Study Notes

Schizophrenia Disorders

Schizophrenia is the descriptive term for a group of psychotic disorders in which personal, social and occupational functioning deteriorates as a result of disturbed thought processes, strange perceptions, unusual emotional states and motor abnormalities.

Symptoms: can be grouped into 3 categories- Positive (i.e. excesses of thought, emotion and behaviour), Negative (deficit of thought, emotion and behaviour) and psychomotor symptoms.



Positive Symptoms: pathological excesses or bizarre additions to a person's behaviour.

Symptoms: Delusions, disorganized thinking and speech, heightened perception and hallucinations.

Q: What are Delusions:

Delusions – false belief that is firmly held on inadequate grounds.

Delusions of persecution- They believe plotted against, spied on, slandered, threatened, attacked or deliberately victimized.

Delusions of reference- in which they attach personal meaning to the actions, objects and events

Delusions of grandeur-They believe themselves to be specially empowered.

Delusions of control- They believe their thoughts, feelings and actions are controlled by others.

Q: What are Hallucinations?

A: Perceptions that occur in absence of external stimuli.

They are of several types-

Auditory Hallucinations: Patients hear sounds or voices that speak directly to them.

Tactile Hallucinations: Tingling, burning sensations.

Somatic: Something happening inside the body, such as snake crawling inside stomach.

Visual: Distinct visions of people and objects.

Gustatory: Food or drink taste strange.

Olfactory: Smell of poison or smoke.

Negative symptoms: are pathological deficits and include

Alogia (reduction in speech content or poverty of speech),

Blunted effect– Less expression of sadness, joy, anger and other feelings.

Flat effect- No emotions and feelings

Loss of volition- Apathy or inability to start or complete any work.

Social withdrawal- become focused on their own ideas and fantasies.

Psychomotor symptoms: Less spontaneous, make odd grimaces and gestures. Types:

Catatonic stupor: remain motionless and silent for long durations.

Catatonic rigidity: maintain a rigid upright posture for hours.

Catatonic posturing: assuming odd, awkward positions.

Disruptive, Impulse-Control and Conduct Disorder

1. **Oppositional Defiant Disorder (ODD)**– display age-inappropriate amounts of **stubbornness**, are **irritable, defiant, disobedient**, and behave in a **hostile** manner. Unlike ADHD, the rates of ODD in boys and girls are not very different.	**2. Conduct Disorder** and **Antisocial Behaviour** refer to age inappropriate actions and attitudes that **violate family expectations, societal norms**, and the personal or property rights of others. The behaviours typical of conduct disorder include aggressive actions that **cause or threaten harm** to people or animals, non-aggressive conduct that causes property damage, major deceitfulness or theft, and serious rule violations. **Types of aggressive behaviour** **Verbal aggression** (i.e. name-calling, swearing), Physical aggression (i.e. hitting, fighting), **Hostile aggression** (i.e. directed at inflicting injury to others) **Proactive aggression** (i.e. dominating and bullying others without provocation).

10. Neurodevelopmental Disorders: Manifested at an early age before schooling

Attention-deficit Hyperactivity Disorder (ADHD)-	Autism Spectrum Disorder	Intellectual Disability Disorder
Inattentive- Find it difficult to sustain mental effort during work or play or in following instructions. Cannot concentrate, is disorganized, easily distracted, forgetful, does not finish assignments, and is quick to lose interest in boring activities. **Impulsive-** unable to control their immediate reactions or to think before they act. They find it difficult to wait or take turns, have difficulty resisting immediate temptations or delaying gratification. Minor mishaps or more serious accidents and injuries can also occur. **Hyperactivity** – They are in constant motion. Sitting still through a lesson is impossible for them. The c may fidget, squirm, climb and run around the room aimlessly. Parents and teachers describe them as 'driven by a motor', always on the go, and talk incessantly. Boys are four times more likely to be given this diagnosis than girls.	Difficulties in **social interaction** and communication, a **restricted range of interests**, and strong desire for routine. About **70 per cent** of children with autism are also **mentally retarded.** They are unable to initiate social behaviour and seem **unresponsive to other people's feelings.** They are unable to share experiences or emotions with others. Many autistic children never develop speech and those who do, have **repetitive and deviant speech patterns.** repetitive behaviours such as lining up objects or **stereotyped body movements** such as rocking, which can be self- injurious.	Below average intellectual functioning (with an IQ of approximately 70 or below), and deficits or impairments in adaptive behaviour (i.e. in the areas of communication, self-care, home living, social/interpersonal skills, functional academic skills, work, etc.) which are manifested before the age of 18 years. Refer Table 4.2, page 85 **Specific learning disorder** the individual experience difficulty in perceiving or processing information efficiently and accurately. - These get manifested during early school years and the individual encounters problems in basic skills in reading, writing and/or mathematics. The affected child tends to perform below average for her/his age. However, individuals may be able to reach acceptable performance levels with additional inputs and efforts. Specific learning disorder is likely to impair functioning and performance in activities/occupations dependent on the related skills.

SQL

Structured Query Language

Lets do practical on DATABASE…

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SQL – Structured Query Language

- *Is a language that enables you to create and operate on relational databases*
- *It is the standard language used by almost all the database s/w vendors.*
- *Pronounced as SEQUEL*
- *Original version was developed by IBM's Almanden Research Center*
- *Latest ISO standard of SQL was released in 2008 and named as SQL:2008*

SQL – features

- *Allows creating/modifying a database's structure*
- *Changing security settings for system*
- *Permitting users for working on databases or tables*
- *Querying database*
- *Inserting/modifying/deleting the database contents*

MYSQL Elements

- *Literals*
- *Data types*
- *Nulls*
- *Comments*

Literals

- *It means the fixed value or constant value. It may be of character, numeric or date time type.*
- *Character and date/time literals are always in single quotation marks whereas numeric literals must be without single quotation marks*
- *For example – 'Virat', 12, 12.56, '04-20-2018'*
- *Date and time values are always in the format YYYY-MM-DD HH:MI:SS*
- *Special character like quotes are always written be preceding it back-slash(\). For example if we want to store value as **Tom's Cat** then it should be written as **Tom\'s Cat***

Data Type

- *Means the type of value and type of operation we can perform on data. For example on numeric value we can store numbers and perform all arithmetic operations and so on.*
- *MySQL support three categories of data types:*
  - *Numeric*
  - *Date and time*
  - *String types*

Numeric Data Types

Data type	Description
INT	Numbers without decimal. Store up to 11 digits. -2147483648 to 2147483647
TINYINT	Small integer value between 0 – 255 (4 digits)
SMALLINT	More than TINYINT between -32768 to 32767 (5 digit)
MEDIUMINT	Integer values up to 9 digits
BIGINT	Very large integer value up to 11 digits
FLOAT(M,D)	Real numbers i.e. number with decimal. M specify length of numeric value including decimal place D and decimal symbol. For example if it is given as FLOAT(8,2) then 5 integer value 1 decimal symbol and 2 digit after decimal TOTAL – 8. it can work on 24 digits after decimal.
DOUBLE(M,D)	Real numbers with more precision up to 53 place after decimal.
DECIMAL	It is used to store exact numeric value that preserve exact precision for e.g. money data in accounting system. DECIMAL(P,D) means P no. of significant digits (1-65), D represent no. of digit after decimal(0-30), for e.g DECIMAL(6,2) means 4 digit before decimal and 2 digit after decimal. Max will be 9999.99

Date and Time Types

Data type	Description
DATE	A date in YYY-MM-DD format between 1000-01-01 to 9999-12-31 **In oracle data format is DD-MON-YYYY for e.g 10-SEP-2019**
DATETIME	Combination of date and time. For example to store 4th December 2018 and time is afternoon 3:30 then it should be written as – 2018-12-04 15:30:00
TIMESTAMP	Similar to DATATIME but it is written without hyphen for example the above date time is stored as 20181204153000
TIME	To store time in the format HH:MM:SS
YEAR(M)	To store only year part of data where M may be 2 or 4 i.e. year in 2 digit like 18 or 4 digit like 2018

String Types

Data type	Description
CHAR(M)	Fixed length string between 1 and 255. it always occupy M size for each data for example if size is CHAR(20) and we store value 'MOBILE' , although the size of MOBILE is 6 but in a table it will occupy 20 size with space padded at right side for remaining place. Mostly use in the case where the data to be insert is of fixed size like Grade (A,B,C,..) or Employee code as E001, E002, etc. In this case CHAR will give better performance than varchar
VARCHAR(M)	Variable length string between 1 and 65535 (from MySQL 5.0.3) , earlier it was 255. it takes size as per the data entered for example with VARCHAR(20) if the data entered is MOBILE then it will take only 6 byte. It is useful for the data like name, address where the number of character to be enter is not fixed.
VARCHAR2	It is supported in ORACLE, both are almost same with minor difference. The difference is in the way they are handling Empty String and NULL, for VARCHAR these two are different where as VARCHAR2 treats both same.

Difference between CHAR & VARCHAR

CHAR	VARCHAR
Fixed length string	Variable length string
Used where number of character to enter is fixed like Grade, EmpCode, etc	Used where number of character to be enter is not fixed like name, address etc.
Fast, no memory allocation every time	Slow, as it take size according to data so every time memory allocation is done
It takes more memory	It takes less space

NULL VALUE

- NULL means missing information
- NULL can appear in any type of column if it is not restricted by NOT NULL or PRIMARY KEY
- Always remember NULL is neither equal to 0 nor space. NULL means nothing
- Used in situation like if email id is not available with students then we will insert NULL

COMMENTS

- It is a text that is not executed, only for documentation purpose. Comments in MySQL can be written as
  - Begin the comment with /* and */
  - Begin the comment with – (followed by space)
  - Begin then comment with #
- For example
  - /* Select * from emp where empno=4 */
  - Select * from emp; -- it will fetch all details

SQL COMMAND SYNTAX

Commands	Description
Keywords	That have special meaning in SQL. They are the commands in mysql
Clause	They are used to support mysql commands like FROM, WHERE etc.
Arguments	Values passed to clause like table name to FROM clause conditions to WHERE clause for e.g. SELECT * FROM EMP WHERE SALARY>12000; In the above command SELECT is keyword FROM AND WHERE is clause EMP is an argument to FROM SALARY>12000 is argument to WHERE

CREATING and USING DATABASE

CREATE DATABASE <DATABASE NAME>

CREATE DATABASE MYDB;

TO SEE LIST OF DATABASES:

SHOW DATABASES;

TO OPEN ANY DATABASE TO WORK

USE DATABASENAME

USE MYDB

CREATING TABLE

Syntax:-

Create Table TableName(ColumnName datatype(size), ColumnName datatype(size),.....);

Example:-

Create Table Employee(empno int, name varchar(20), dept varchar(20), salary int);

Create table Student(roll int, name varchar(20), stream varchar(20), per int);

INSERTING RECORDS IN TABLE

Syntax:-

Insert into tablename values(value1,value2,…)

Note:-

1) *char, varchar and date value must be in single quotes*
2) *Values must be passed in the order of their column*
3) *Date values are passed in the format*

   dd-mon-yyyy i.e. 20-Sep-2015 (in oracle)

   yyyy-mm-dd (in mysql)

INSERTING RECORDS IN TABLE

Syntax:-

Insert into emp values(1, 'Rakesh','Sales',34000)

Insert into student values(1,'Mahi','Science',89);

Inserting in selected columns

Insert into emp (empno, name, dept) values (2,'dipanker','IT')

SELECTING RECORD

Select statement allows to send queries to table and fetch the desired record. Select can be used to select both horizontal and vertical subset.

Syntax:-

Select * / columnnames FROM tablename [where condition]

SELECTING RECORD

Selecting all record and all columns

```
Select * from emp;
```

Selecting desired columns

```
select empno, name from emp;
```

Changing the order of columns

```
select dept, name from emp;
```

DISTINCT keyword

DISTINCT keyword is used to eliminate the duplicate records from output. For e.g. if we select dept from employee table it will display all the department from the table including duplicate rows.

Select dept from emp;

Output will be:-

Dept

Sales
Sales
IT
IT
HR

Empno	Name	Dept	Salary
1	Ravi	Sales	24000
2	Sunny	Sales	35000
3	Shobit	IT	30000
4	Vikram	IT	27000
5	nitin	HR	45000

DISTINCT keyword

If we don't want to see the duplicate rows in output we have to use DISTINCT keyword.

Select DISTINCT dept from emp;

Output will be:-

Dept

Sales

IT

HR

Empno	Name	Dept	Salary
1	Ravi	Sales	24000
2	Sunny	Sales	35000
3	Shobit	IT	30000
4	Vikram	IT	27000
5	nitin	HR	45000

PERFORMING SIMPLE CALCULATION

While performing SQL operations sometimes simple calculations are required, SQL provides facility to perform simple arithmetic operations in query. In MySQL we can give these queries without FROM clause i.e. table name is not required for these queries,

For Example

```
Select 10*2;
Select 10*3/6;
```

PERFORMING SIMPLE CALCULATION

MySQL also provides DUAL table to provide compatibility with other DBMS. It is dummy table used for these type queries where table name is not required. It contains one row and one column. For example:

```
Select 100+200 from DUAL;
Select curdate()  from dual;
```

CALCULATION WITH TABLE DATA

```
Select name, salary, salary * 12 Annual_Salary from emp;
Select empno, salary+1000 from emp
Update student set total=phy+chem+maths+cs+eng;
```

COLUMN ALIAS

It is a temporary name/label given to column that will appear in output. For example if column name is dept and you want Department to appear as column heading then we have to give Column Alias. If we want alias name of multiple words then it should be enclosed in double quotes. Its format is :

ColumnName [AS] ColumnAlias

Example

(i) Select empno Employee_Number, name, dept Department, Salary Income from emp;

(ii) Select name, Salary*12 as “Annual Income” from emp;

HANDLING NULL

```
mysql> select * from emp;
+-------+--------+-------+--------+
| empno | name   | dept  | salary |
+-------+--------+-------+--------+
|     1 | Amit   | IT    |   8000 |
|     2 | Sumit  | SALES |   9000 |
|     3 | Ajit   | HR    |   8500 |
|     4 | Vikram | SALES |  10000 |
|     5 | Shaban | HR    |   NULL |
+-------+--------+-------+--------+
5 rows in set (0.15 sec)
```

```
mysql> select empno,name,ifnull(salary,"not assigned") from emp;
+-------+--------+-------------------------------+
| empno | name   | ifnull(salary,"not assigned") |
+-------+--------+-------------------------------+
|     1 | Amit   | 8000                          |
|     2 | Sumit  | 9000                          |
|     3 | Ajit   | 8500                          |
|     4 | Vikram | 10000                         |
|     5 | Shaban | not assigned                  |
+-------+--------+-------------------------------+
5 rows in set (0.05 sec)
```

From the above table we can observe that salary of Shaban is NULL i.e. not assigned, Now if we want 0 or "not assigned" for the salary information of shaban, we have to use IFNULL()

Select empno,name,IFNULL(Salary,"not assigned") from emp;

Column **value to substitute if NULL found**

PUTTING TEXT IN QUERY OUTPUT

SQL allows to put user defined symbols or text with table output. Like 'Rs' with Salary or '%' symbol with commission

For e.g.

Select name, dept, 'Rs.', salary from emp;

Select name, ' works in department', dept, ' and getting salary rs. ', salary from emp;

Select name, concat('Rs. ', salary) from emp;

WHERE clause

WHERE clause is used to select specified rows. It allows to select only desired rows by applying condition. We can use all comparison(>, <, >=, <=, =, <>) and logical operator (AND, OR, NOT).

AND (&&), OR (||) , NOT (!)

For example

Select * from emp where salary>4000;

Select * from emp where empno=1;

Select name,dept from emp where dept='HR';

WHERE clause

AND(&&) means both conditions must be true, OR(||) means any condition must be true to produce output. NOT(!) will do the reverse checking.

Select * from emp where salary>4000 and salary<8000;

Select * from emp where dept='Sales' and salary<30000;

Select name,dept from emp where dept='HR' and salary>=20000 and salary<=40000;

Select * from emp where dept='HR' or dept='IT';

Select * from emp where NOT empno=4;

SQL operators

1) BETWEEN
2) IN
3) LIKE
4) IS NULL

BETWEEN

BETWEEN allows to specify range of values to search in any column. It is used with AND clause and it will include the specified values during the searching. For e.g.

*Select * from emp where salary between 18000 and 30000;*

Select name from emp where empno between 2 and 5;

*Select * from emp where salary **NOT** between 25000 and 35000*

IN

IN allows to specify LIST of values in which searching will be performed. It will return all those record that matches any value in a given list of values. It can be thought as an alternative of multiple ORs

*Select * from emp where dept IN('sales','it');*

Select name from emp where empno IN (2,4,5);

*Select * from emp where dept **NOT** IN('sales','it')*

LIKE

LIKE allows to search based on pattern. It is used when we don't want to search an exact value or we don't know that exact value, and we know only the pattern of value like name starting from any particular letter, or ending with and containing any particular letter or word.

LIKE is used with two wildcard characters:

a) **%** : used when we want to substitute multiple characters. With % length is not fixed

b) **_** (underscore) : used when we want to substitute Single character

LIKE

Search for employee whose name begins from ‘s’

Select * from emp where name like ‘s%’;

Search for employee whose name ends with ‘r’

Select * from emp where name like ‘%r’;

Search for employee whose name contains ‘a’ anywhere

Select * from emp where name like ‘%a%’

Search for employee whose dob is in feb

Select * from emp where dob like ‘%-02-%’

Search employee whose name is of 5 letters begins from ‘s’

Select * from emp where name like ‘s_ _ _ _ ’;

IS NULL

IS NULL is used to compare NULL values present in any column. Because NULL is not considered as value so we cannot compare with = sign, so to compare with NULL SQL provides IS NULL.

Select * from emp where salary is null;

Select * from emp where salary is not null;

OPERATOR PRECEDENCE

When multiple operators are used in expression, then evaluation of expression takes place in the order of precedence. Higher precedence operator will execute first.

!
*, /, DIV, %, MOD
- +
<, >
==, >=, <=, !=, IS, LIKE, IN, BETWEEN
NOT
AND
OR

HIGH

LOW

SORTING OUTPUT

By default records will come in the output in the same order in which it was entered. To see the output rows in sorted or arranged in ascending or descending order SQL provide **ORDER BY** clause. By default output will be ascending order(ASC) to see output in descending order we use DESC clause with ORDER BY.

Select * from emp order by name; (ascending order)

Select * from emp order by salary desc;

Select * from emp order by dept asc, salary desc;

MYSQL FUNCTIONS

A function is built – in code for specific purpose that takes value and returns a single value. Values passed to functions are known as arguments/parameters.

There are various categories of function in MySQL:-

1) String Function
2) Mathematical function
3) Date and time function

String Function

Function	Description	Example
CHAR()	Return character for given ASCII Code	Select Char(65); Output- A
CONCAT()	Return concatenated string	Select concat(name, ' works in ', dept,' department);
LOWER()/ LCASE()	Return string in small letters	Select lower('INDIA'); Output- india Select lower(name) from emp;
SUBSTRING(S,P,N) / MID(S,P,N)	Return N character of string S, beginning from P	Select SUBSTRING('LAPTOP',3,3); Output – PTO Select SUBSTR('COMPUTER',4,3); Output – PUT
UPPER()/ UCASE()	Return string in capital letters	Select Upper('india'); Output- INDIA
LTRIM()	Removes leading space	Select LTRIM(' Apple'); Output- 'Apple'
RTRIM	Remove trailing space	Select RTRIM('Apple '); Output- 'Apple'

String Function

Function	Description	Example
TRIM()	Remove spaces from beginning and ending	Select TRIM(‘ Apple ‘); Output-’Apple’ Select * from emp where trim(name) = ‘Suyash’;
INSTR()	It search one string in another string and returns position, if not found 0	Select INSTR(‘COMPUTER’,’PUT’); Output-4 Select INSTR(‘PYTHON’,’C++’); Output – 0
LENGTH()	Returns number of character in string	Select length(‘python’); Output- 7 Select name, length(name) from emp
LEFT(S,N)	Return N characters of S from beginning	Select LEFT(‘KV OEF’,2); Output- KV
RIGHT(S,N)	Return N characters of S from ending	Select RIGHT(‘KV OEF’,3); Output- OEF

Numeric Function

Function	Description	Example
MOD(M,N)	Return remainder M/N	**Select MOD(11,5); Output- 1**
POWER(B,P)	Return B to power P	**Select POWER(2,5); Output-32**
ROUND(N,D)	Return number rounded to D place after decimal	**Select ROUND(11.589,2); Output- 11.59** **Select ROUND(12.999,2); Output- 13.00**
SIGN(N)	Return -1 for –ve number 1 for +ve number	**Select sign(-10); Output : -1** **Select sign(10); Output : 1**
SQRT(N)	Returns square root of N	**Select SQRT(144); Output: 12**
TRUNCATE(M,N)	Return number upto N place after decimal without rounding it	**Select Truncate(15.789,2); Output: 15.79**

Date and Time Function

Function	Description	Example
CURDATE()/ CURRENT_DATE() / CURRENT_DATE	Return the current date	**Select curdate(); Select current_date();**
DATE()	Return date part from date-time expression	**Select date('2018-08-15 12:30'); Output: 2018-08-15**
MONTH()	Return month from date	**Select month('2018-08-15'); Output: 08**
YEAR()	Return year from date	**Select year('2018-08-15'); Output: 2018**
DAYNAME()	Return weekday name	**Select dayname('2018-12-04'); Output: Tuesday**
DAYOFMONTH()	Return value from 1-31	**Select dayofmonth('2018-08-15') Output: 15**
DAYOFWEEK()	Return weekday index, for Sunday-1, Monday-2, ..	**Select dayofweek('2018-12-04'); Output: 3**
DAYOFYEAR()	Return value from 1-366	**Select dayofyear('2018-02-10') Output: 41**

Date and Time Function

Function	Description	Example
NOW()	Return both current date and time at which the function executes	**Select now();**
SYSDATE()	Return both current date and time	**Select sysdate()**

Difference Between NOW() and SYSDATE() :
NOW() function return the date and time at which function was executed even if we execute multiple NOW() function with select. whereas SYSDATE() will always return date and time at which each SYDATE() function started execution. For example.

mysql> Select now(), sleep(2), now();
Output: 2018-12-04 10:26:20, 0, 2018-12-04 10:26:20
mysql> Select sysdate(), sleep(2), sysdate();
Output: 2018-12-04 10:27:08, 0, 2018-12-04 10:27:10

AGGREGATE functions

Aggregate function is used to perform calculation on group of rows and return the calculated summary like sum of salary, average of salary etc.

Available aggregate functions are –

1. *SUM()*
2. *AVG()*
3. *COUNT()*
4. *MAX()*
5. *MIN()*
6. *COUNT(*)*

AGGREGATE functions

Empno	Name	Dept	Salary
1	Ravi	Sales	24000
2	Sunny	Sales	35000
3	Shobit	IT	30000
4	Vikram	IT	27000
5	nitin	HR	45000

Select SUM(salary) from emp;

Output – 161000

Select SUM(salary) from emp where dept='sales';

Output - 59000

AGGREGATE functions

Empno	Name	Dept	Salary
1	Ravi	Sales	24000
2	Sunny	Sales	35000
3	Shobit	IT	30000
4	Vikram	IT	27000
5	nitin	HR	45000

Select AVG(salary) from emp;

Output – 32200

Select AVG(salary) from emp where dept='sales';

Output - 29500

AGGREGATE functions

Empno	Name	Dept	Salary
1	Ravi	Sales	24000
2	Sunny	Sales	35000
3	Shobit	IT	30000
4	Vikram	IT	27000
5	nitin	HR	45000

Select COUNT(name) from emp;

Output – 5

Select COUNT(salary) from emp where dept='HR';

Output - 1

Select COUNT(DISTINCT dept) from emp;

Output - 3

AGGREGATE functions

Empno	Name	Dept	Salary
1	Ravi	Sales	24000
2	Sunny	Sales	35000
3	Shobit	IT	30000
4	Vikram	IT	27000
5	nitin	HR	45000

Select MAX(Salary) from emp;

Output – 45000

Select MAX(salary) from emp where dept='Sales';

Output - 35000

AGGREGATE functions

Empno	Name	Dept	Salary
1	Ravi	Sales	24000
2	Sunny	Sales	35000
3	Shobit	IT	30000
4	Vikram	IT	27000
5	nitin	HR	45000

Select MIN(Salary) from emp;

Output – 24000

Select MIN(salary) from emp where dept='IT';

Output - 27000

AGGREGATE functions

Empno	Name	Dept	Salary
1	Ravi	Sales	24000
2	Sunny	Sales	35000
3	Shobit	IT	30000
4	Vikram	IT	27000
5	nitin	HR	45000
6	Krish	HR	

Select COUNT(*) from emp;

Output – 6

Select COUNT(salary) from emp;

Output - 5

count(*) Vs count()

Count(*) function is used to count the number of rows in query output whereas count() is used to count values present in any column excluding NULL values.

Note:

All aggregate function ignores the NULL values.

GROUP BY

GROUP BY clause is used to divide the table into logical groups and we can perform aggregate functions in those groups. In this case aggregate function will return output for each group. For example if we want sum of salary of each department we have to divide table records

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	17-DEC-80	800		20
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30
7566	JONES	MANAGER	7839	02-APR-81	2975		20
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30
7698	BLAKE	MANAGER	7839	01-MAY-81	2850		30
7782	CLARK	MANAGER	7839	09-JUN-81	2450		10
7788	SCOTT	ANALYST	7566	19-APR-87	3000		20
7839	KING	PRESIDENT		17-NOV-81	5000		10
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30
7876	ADAMS	CLERK	7788	23-MAY-87	1100		20
7900	JAMES	CLERK	7698	03-DEC-81	950		30
7902	FORD	ANALYST	7566	03-DEC-81	3000		20
7934	MILLER	CLERK	7782	23-JAN-82	1300		10

Aggregate functions by default takes the entire table as a single group that's why we are getting the sum(), avg(), etc output for the entire table. Now suppose organization wants the sum() of all the job separately, or wants to find the average salary of every job. In this case we have to logically divide our table into groups based on job, so that every group will be passed to aggregate function for calculation and aggregate function will return the result for every group.

Group by clause helps up to divide the table into logical groups based on any column value. In those logically divided records we can apply aggregate functions.
For. E.g.

SELECT SUM(SAL) FROM EMP GROUP BY DEPT;
SELECT JOB,SUM(SAL) FROM EMP GROUP BY DEPT;
SELECT JOB,SUM(SAL),AVG(SAL),MAX(SAL),COUNT(*) EMPLOYEE_COUNT FROM EMP;

NOTE :- when we are using GROUP BY we can use only aggregate function and the column on which we are grouping in the SELECT list because they will form a group other than any column will gives you an error because they will be not the part of the group.
For e.g.
SELECT ENAME,JOB,SUM(SAL) FROM EMP GROUP BY JOB;
Error -> because Ename is not a group expression

HAVING with GROUP BY

- If we want to filter or restrict some rows from the output produced by GROUP BY then we use HAVING clause. It is used to put condition of group of rows. With having clause we can use aggregate functions also.
- WHERE is used before the GROUP BY. With WHERE we cannot use aggregate function.
- E.g.
- **SELECT DEPT,AVG(SAL) FROM EMP GROUP BY DEPT HAVING JOB IN ('HR','SALES')**
- **SELECT DEPT,MAX(SAL),MIN(SAL),COUNT(*) FROM EMP GROUP BY DEPT HAVING COUNT(*)>2**
- **SELECT DEPT,MAX(SAL),MIN(SAL) FROM EMP WHERE SAL>=2000 GROUP BY DEPT HAVING DEPT IN('IT','HR')**

JUST A MINUTE…

- Create the following table and add the records

ItemNo	Item	Dcode	Qty	UnitPrice	StockDate
5005	Ball Pen 0.5	102	100	16	2018-03-10
5003	Ball Pen 0.25	102	150	20	2017-05-17
5002	Gel Pen Premium	101	125	14	2018-04-20
5006	Gel Pen Classic	101	200	22	2018-10-08
5001	Eraser Small	102	210	5	2018-03-11
5004	Eraser Big	102	60	10	2017-11-18
5009	Sharpener Classic	NULL	160	8	2017-06-12

JUST A MINUTE…

Write down the following queries based on the given table:

1) Select all record of table
2) Select ItemNo, name and Unitprice
3) Select all item record where Unitprice is more than 20
4) Select Item name of those items which are quantity between 100-200
5) Select all record of Items which contains pen word in it
6) Select unique dcode of all items
7) Display all record in the descending order of UnitPrice
8) Display all items which are stocked in the month of March

JUST A MINUTE…

Write down the following queries based on the given table:

11) Change the unitprice to 20 for itemno 5005

12) Delete the record of itemno 5001

13) Display all the item name in capital letters

14) Display first 4 character of every item name

15) Display all record whose dcode is not assigned

EXPORTING DATABASE

- Exporting means creating the text file containing all the database contents which can be imported to any other computer. We use **mysqldump** command for this purpose. To export:
- Open **cmd** from **Start** button
- Or
- Press ***Window Key + R and type cmd*** and press Enter
- At cmd prompt like **C:\....>** type **mysqldump** command

EXPORTING DATABASE

- To export all database
  - **mysqldump --all-databases > c:\mydb.sql**
    - It will create mydb.sql in C:\, we can check it by open it.
- To export single database
  - **mysqldump myworks > c:\mydb2.sql**
- To export multiple datbase
  - **mysqldump myworks company c:\mydb3.sql**

IMPORTINGDATABASE

- **STEP – 1**
  - **Open Notepad and type the following commands**

```
drop database if exists myworks;
create database myworks;
use myworks;
create table emp(empno int,name varchar(20),dept varchar(20), salary int);
create table student(roll int, name varchar(20), per int);
insert into emp values
(1,'Amit','IT',8000),
(2,'Sumit','SALES',9000),
(3,'Ajit','HR',8500),
(4,'Vikram','SALES',10000),
(5,'Shaban','HR',12000);
insert into student values
(1,'Amit',99),
(2,'Sumit',97),
(3,'Vikas',95),
(4,'Jitendra',49);
```

IMPORTING DATABASE

- **STEP – 1**
  - **Save this file with mydb.sql or any name, in your desired location for e.g. C:**
- **STEP – 2**
  - **Open MySQL and type**
    - **SOURCE C:\mydb.sql**
  - **It will create database myworks, 2 tables emp, students with records. We can check it by "SHOW TABLES" or "SELECT" command**

Yoga 12 study material

2.3 Concept of mental health well-being according to patanjali Yoga

Mental Health:- Mental health is an important component of overall health and well being. It can be defined as state of psychological and emotional well being in which an individual is able to use learning abilities, can function constructively and fruitfully in society and can meet with the ordinary demands of everyday life.

Yoga is known to play remarkable role in the improvement of mental health as well as in the treatment and prevention of mental (psychological) health related problems. Patanjala yoga sutras start with the idea of 'cittavrtii nirodha' enlighting the importance of controlling the mind.
Patanjala yoga sutras highlight the capability of yoga to maintain mental health. Itconcentrate on the promotive, preventive, and curative aspects of the Patanjala Yoga Sutras in its syllabus for the promotion and development of the mental health and healthy personality to maintain peace.
The yoga sutras allows a practical philosophy and an applied science of life with all the necessary related processes, tools and techniques. Yoga therapy in sutras offer sound procedure for a harmonious particular life and also a sound principles for higher, spiritual, transcendental life.
There is a wonderful functioning connection between the ultimate goal, and the ways and means prescribed to attain it. Man is lost in pursuit of wealth, comfort and technology at the cost of his peace of mind and health.

HOTS QUESTION

Q1. Statement(A) :-Patanjali yoga sutras start with the idea of 'cittavrti nirodha' enlighting the importance of controlling the mind.

Assertion(B) :-Yoga is suppression of modification of the mind.

a) A is true but B is false.

b) Ais false but B is true.

c)Both A and B is true.

d) Both A and B is false.

Q2. Statement(A):-Mental health is an important component of overall health and wellbeing.

Assertion(B) :-Health is a state of complete physical, mental, and social well being and not merely the absence of disease and infirmity.

a) A is true but B is false.

b) A is false but B is true.

c) Both A and B is true.

d) Both A and B is false.

Class 12

Study Notes 14

Subject Hindi

Topic Apna Malwa

पाठ का सार

- मालवा में जब सब जगह बरसाती की झड़ी लगी रहती है, तब मालवा के जनजीवन पर इसका गहरा प्रभाव पड़ता है। खूब बरसात होती है। मालवा में स्थित नदी-नाले पानी से भर जाते हैं। यहाँ तक की बरसात का पानी घरों में पहुँच जाता है। फसलें लहलहा उठती हैं। मालवा में व्याप्त बाबड़ी, तालाब, कुएँ तथा तलैया सब पानी से लबालब भर जाते हैं। इससे मालवा में लगता है कि भगवान की खूब कृपा हुई है। वहाँ की बरसात की झड़ी मालवा को समृद्धशाली बनाती है।
- औद्योगिकरण ने पर्यावरण को नुकसान पहुँचाया है। इसके कारण पर्यावरण में भयंकर बदलाव देखने को मिले हैं। इसने जल, थल तथा भूमि प्रदूषण को बढ़ावा दिया है।

- वायुमण्डल में कार्बन डाईऑक्साइड गैस की अधिकता के कारण भी मौसम पर प्रभाव पड़ रहा है। यह गर्म होती है, जिसके कारण वायुमण्डल और ओजन परत को नुकसान पहुँच रहा है।

- पेड़ों की अत्यधिक कटाई के कारण भी मालवा धरती उज़डने लगी है।
- आज के इंजीनियर अपने तकनीक ज्ञान को बहुत उच्च मानते हैं। उनको लगता है कि पुराने ज़माने में लोगों को तकनीकी ज्ञान नहीं था। वे तकनीकी शिक्षा से अनजाने थे। ऐसा सोचकर वे स्वयं एक गलतफहमी में जीते हैं। वह मानते हैं कि पश्चिमी सभ्यता ने ज्ञान का प्रसार किया है। भारत के लोगों को ज्ञान था ही नहीं। रिनसां के बाद से ही लोगों के अंदर ज्ञान का फैलाव हुआ।

- इन राजाओं ने पठारों की कमज़ोरी को समझा और पानी को रोकने के लिए बेहतर इंतज़ाम किए। उन्होंने इसके लिए सबसे पहले वहाँ पर तालाब, कुएँ, बावड़ियों का निर्माण करवाया। इस तरह वह बरसात का पानी जमा करके रख सकते थे। यह पानी पूरे वर्ष पानी की व्यवस्था करता था और लोगों को पानी के लिए तरसना नहीं पड़ता था। मालवा इसी का प्रमाण है।

- आज के समय में मनुष्य तेज़ी से प्रगति कर रहा है परन्तु इस प्रगति ने बहुत नुकसान भी किया है। प्रदूषण इस प्रगति का सबसे भयानक रूप है। प्रदूषण की मार से जल, थल और आकाश पूरी तरह से ग्रसित हैं। पानी जीवन प्रदान करता है परन्तु मनुष्य ने इस अमूल्य जल संसाधन को भी प्रदूषित कर दिया है। नदियाँ जो पानी का मुख्य स्रोत है, वे प्रदूषण की चपेट में आ गई हैं। इनमें शहरों का गंदा पानी बहा दिया जाता है साथ कारखानों का जहरीला पदार्थ भी इसमें डाल दिया जाता है। परिणाम इनका पानी पीने योग्य नहीं रहा है। नदियाँ सदियों से मनुष्य के लिए पानी की आपूर्ति करती आ रही हैं। लेकिन आज इनका पानी इतना जहरीला हो गया है कि इससे भयंकर बीमारी होने लगी हैं। यहां तक इसमें निवास करने वाले जीव-जन्तुओं का जीवन भी प्रदूषण के कारण विलुप्ति की कगार पर है। सरकार तथा कई सामाजिक संस्थाएँ समय-समय पर इसे बचाने के लिए प्रयास कर रही हैं। परन्तु उनके सभी प्रयास असफल रहे हैं। यदि ऐसा ही रहा तो यह गंदे नाले में बदल जाएँगी। यमुना नदी तो नाले में बदल ही चुकी है। हमें चाहिए कि इस ओर ध्यान दे और प्रदूषण से इनकी रक्षा करें।

- हम लेखक के इस कथन से बिलकुल सहमत है। ऐसी औद्योगिक सभ्यता जिसने विकास के नाम पर प्रदूषण, प्रकृति दोहन, पृथ्वी का विनाश ही किया है। उसे अपसभ्यता ही कहेंगे। यह कौन-सा विकास है, जो हमें प्रगति के नाम पर विनाश की ओर ले जा रहा है। हम एक आविष्कार करते हैं और उससे पाँच नई समस्याएँ पैदा कर लेते हैं। हम किसी भी विकास के साधनों पर नज़र डालें तो हमें विकास के स्थान पर विनाश ही विनाश दिखाई देगा। मनुष्य ने अपनी उत्पत्ति के साथ से ही पृथ्वी का दोहन करना आरंभ कर दिया था। परन्तु तब दोहन की प्रक्रिया बहुत ही मंद थी। जैसे-जैसे मनुष्य का विकास होता गया, उसने प्रकृति का दोहन तेज़ी से करना आरंभ कर दिया। उसने रहने के लिए पेड़ों को काटा, आवास के लिए ईंट के निर्माण के लिए मिट्टी का प्रयोग किया, कोयले, सीमेंट, धातु, हीरे इत्यादि की आवश्यकताओं को पूरा करने के लिए उसने पृथ्वी को खोदा। यह कैसा विकास है, जिसमें स्वयं की जड़ काटी जा रही है। अतः हम इसे अपसभ्यता कहेंगे।

- आज पूरे संसार में ग्लोबल वार्मिंग का खतरा मंडरा रहा है। पूरे विश्व के वैज्ञानिक इस स्थिति से परेशान है। इसके कारण धरती का वातावरण तेज़ी से गरम हो रहा है। हम मनुष्य ने अपनी सुविधाओं के नाम पर जो भी कुछ किया है, वह हमारे लिए खतरनाक सिद्ध हो रहा है। वाहनों, हवाई जहाजों, बिजली बनाने वाले संयंत्रों (प्लांटस), उद्योगों इत्यादि से अंधाधुंध होने वाले गैसीय उत्सर्जन की वजह से कार्बन डायऑक्साइड में वृद्धि हो रही है। इन गतिविधियों से कार्बन डायऑक्साइड, मिथेन, नाइट्रोजन ऑक्साइड इत्यादि ग्रीनहाउस गैसों की मात्रा में बढ़ रही हैं, जिससे इन गैसों का आवरण घना होता जा रहा है। यही आवरण सूर्य की परावर्तित किरणों को रोक रहा है, जिससे धरती के तापमान में बढ़ोतरी हो रही है। ग्लेशियरों की बर्फ बढ़ रहे तापमान से तेज़ी से पिघल रही है। जिससे आने वाले समय में जल संकट खड़ा हो सकता है। जंगलों का बड़ी संख्या में हो रहा कटाव भी इसकी दूसरी सबसे बड़ी वजह है। जंगल कार्बन डायऑक्साइड की मात्रा को प्राकृतिक रूप से नियंत्रित करते हैं, लेकिन इनकी अंधाधुंध कटाई से यह प्राकृतिक नियंत्रक भी नष्ट हो रहे हैं। यदि जल्दी नहीं की गई तो हमारे जीवन पर भी सवालिया निशान उठ खड़ा होगा। इन गैसों के उत्सर्जन में

अमेरिका तथा यूरोपीय देशों की भूमिका मुख्य है। वहाँ से सबसे अधिक इन गैसों का उत्सर्जन हो रहा है। वे इस बात स्वीकार नहीं करते हैं।

- हाँ, मुझे भी पर्यारवण की चिंता है। मैं देख रहा हूँ कि आस-पास क्या हाल है। मैं दिल्ली में रहता हूँ और आज यह भारत के सबसे प्रदूषण युक्त शहर में आती है। इसके कारण यहाँ के नागरिकों को साँस संबंधी तथा त्वचा संबंधी बीमारियाँ हो रही हैं। यहाँ पर शुद्ध वायु लेना तो जैसे सपने की बात है। इस कारण लोगों की आयु भी कम हो रही है। मैं सोचता हूँ यदि ऐसा रहा, तो भारत का दिल कहा जाने वाला यह शहर कैसे बचेगा। इसके अतिरिक्त यदि मेरे देश के हर राज्य और शहर का यही हाल रहा, तो हमारी आने वाली पीढ़ियों का क्या होगा। हम उन्हें क्या देंगे। हमें शीघ्र ही कुछ करना पड़ेगा। वरना समय दूर नहीं है। जब मेरा देश प्रदूषण के जहर से त्रस्त हो जाएगा।

- मनुष्य ने सदैव ही अपने विकास के लिए अनेक कार्य किए हैं। मनुष्य ने विज्ञान के माध्यम से अनेक आविष्कार किए, अनेक ऐसी वस्तुओं का निर्माण किया, जो हमारे लिए सोचना भी संभव नहीं था। मनुष्य ने अपनी इच्छाशक्ति के बल पर अपनी कल्पना को साकार किया। उसने ही औद्योगिक सभ्यता को जन्म दिया है। इसने जहाँ एक ओर हमें प्रगति व उन्नति के पथ में अग्रसर किया है, वहीं दूसरी ओर पर्यावरण का सबसे बड़ा नुकसान किया है। औद्योगिक सभ्यता ने प्रकृति की जीवन शैली को आघात पहुँचाया है। इस आघात से उत्पन्न घाव से उभरने के लिए मनुष्य को शायद ही प्रकृति द्वारा समय दिया जाए। प्रकृति के बिना पृथ्वी में रहने की कल्पना करना ही पूरे शरीर में सिहरन भर देता है। प्रकृति भगवान द्वारा दी गई बहुमूल्य भेंट है। प्रकृति, मनुष्य को सदैव देती रही है और हम याचक की तरह उसके समक्ष भिक्षा का पात्र लेकर खड़े रहे हैं। परन्तु आज स्थिति दूसरी बन गई है। हमने प्रकृति का इतना दोहन कर लिया है कि इसने अपना मैत्री भाव छोड़कर विकरालता को धारण कर लिया है। बढ़ते प्रकृति दोहन से जलीय, थलीय एवं वायुमंडलीय प्रदूषण बढ़ गया है। परन्तु भूमि प्रदूषण की अधिकता देखते ही बनती है। औद्योगिक कचरे के फैलाव के कारण अनेक समस्याओं व बीमारियों को आमंत्रण मिला है। जगह-जगह मानव निर्मित कचरे के ढेर दिखाई देते हैं, जिससे मनुष्य व अन्य प्रकार के प्राणियों के लिए अधिक खतरा मंडरा रहा है। वनों के कटाव से भूमि के कटाव की समस्या और रेगिस्तान के प्रसार की समस्या सामने आई है। वनों के अत्यधिक कटाव ने जंगली जानवरों के अस्तित्व को संकट में डाला है। ऊर्जा के उत्पादन के लिए अचल संपदा का स्थायी क्षय हुआ है। रसायनों के अत्यधिक प्रयोग ने मिट्टी संबंधी प्रदूषण को बढ़ाया है। इससे इसकी उर्वरता पर प्रभाव पड़ा है। इन सभी समस्याओं पर यदि अभी ध्यान नहीं दिया गया, तो आगे चलकर ये सभी समस्याऐं विकरालता की हद को भी पार कर जाएँगी। आज पर्यावरण में बढ़ते प्रदूषण के कारण नित नई बीमारियाँ अपना मुँह फाड़े मनुष्य को काल का ग्रास बनाने के लिए तैयार हैं। एक बीमारी से हम निजात पाते नहीं कि नई बीमारी आ खड़ी होती।

- प्रदूषण को रोकने के लिए वायुमंडल को साफ़-सुथरा रखना परमावश्यक है। इस ओर जनता को जागरुक किया जाना चाहिए। बस्ती व नगर के समस्त वर्जित पदार्थों के निष्कासन के लिए सुदूर स्थान पर समुचित व्यवस्था की जानी चाहिए। जो औद्योगिक प्रतिष्ठान शहरों तथा घनी आबादी के बीच में हैं, उन्हें नगरों से दूर स्थानांतरित करने का पूरा प्रबन्ध करना चाहिए। घरों से निकलने वाले

दूषित जल को साफ करने के लिए बड़े-बड़े प्लाट लगाने चाहिए। फैक्टिरयों और कारखानों को नदियों से दूर कर देना चाहिए। सौर ऊर्जा को बढ़ावा देना चाहिए। वन संरक्षण तथा वृक्षारोपण को सर्वाधिक प्राथमिकता देनी चाहिए। इस प्रकार प्रदूषण युक्त वातावरण का निर्माण किया जा सकेगा।