



BK BIRLA CENTRE FOR EDUCATION
SARALA BIRLA GROUP OF SCHOOLS
SENIOR SECONDARY CO-ED DAY CUM BOYS' RESIDENTIAL SCHOOL



MID-TERM EXAMINATION 2023-24

PSYCHOLOGY (037)

Class : XI
Date : 18-10-2023
Admission No:

MARKING SCHEME

Duration : **3 Hrs**
Max. Marks : **70**
Roll No. :

General Instructions:

- (i) All questions are compulsory.
- (ii) Answers should be brief and to the point.
- (iii) PART- A has 17 Learning Checks carrying one mark each. You are required to answer them as directed.
- (iv) Questions 18 to 21 in PART- B are Very Short Answer type questions carrying 2 marks each. Answer to each question should not exceed 30 words.
- (v) Questions 22 to 24 in PART- C are Short Answer Type I questions carrying 3 marks each. Answer to each question should not exceed 60 words.
- (vi) Questions 25 to 30 in PART- D are Short Answer Type II questions carrying 4 marks each. Answer to each question should not exceed 100 words.
- (vii) Questions 31 and 32 in PART- E are Long Answer Type questions carrying 6 marks each. Answer to each question should not exceed 200 words.

SECTION - A

1. According to the _____ perspective, scientific psychology must focus on what is observable and verifiable. **1**

Ans. D) Behavioural

2. A researcher wants to understand the relationship between the impact of aggression depicted by family members and the aggression displayed by children when they deal with unpleasant situations. Which hypothesis do you think will be best suitable? **1**

Ans. A) Greater is the amount of aggression depicted by the family members, higher is the degree of aggression displayed by the children to deal with unpleasant situations

3. Modern cognitive psychology views human beings as actively constructing their minds through their exploration into the physical and the social world, which is sometimes called _____. **1**

Ans. C) Constructivism

4. Which one of the following is the function of negative reinforcement? **1**

A) It leads to learning of avoidance and escape responses.

5. In the question given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option. **1**

Assertion (A): What is called reinforcer in operant conditioning, is called Unconditional Stimulus in classical conditioning.

Reason (R): An Unconditioned Stimulus has two functions. In the beginning, it elicits the response and also reinforces the response to be associated and elicited later on by the CS.

Ans. A) Both A and R are true and R is not the correct explanation of A.

6. In order to be noticed, a stimulus has to carry a minimum value or weight. The minimum value of a stimulus required to activate a given sensory system is called _____. **1**

Ans. B) Absolute Threshold

7. In the question given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option. **1**

Assertion (A): Psycho-neuro-immunology emphasises the role played by the mind in strengthening the immune system.

Reason (R): Recent studies in affective neuroscience have clearly shown that there is a relationship between mind and behaviour.

Ans. A) Both A and R are true and R is the correct explanation of A.

8. When information heard through the unattended channel, "Break Through" and enter into the higher levels of processing, it is called the _____ theory of selective attention. **1**

A) Filter Attenuation theory

9. Genotype include physical traits, such as height, weight, eye and skin colour, and many of the psychological characteristics such as intelligence, creativity, and personality which are observable characteristics of an individual. **1**

Ans. False

10. During a particular stage, individual progresses towards an assumed goal - a state or ability that s/he must achieve in the same order as other persons before progressing to the next stage in the sequence. These are called _____. **1**

Ans. C) Developmental tasks

11. These are memories of events that are very arousing or surprising, and very detailed. **1**

Ans. C) Flashbulb memory

12. Whatever scores we get in psychological studies, are not absolute in nature; rather, they have a relative value... **1**

Ans. True

13. In the question given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option. **1**

Assertion (A): Retroactive interference is the partial or complete forgetfulness of the previously learned material.

Reason (R): It happens due to new memories that get mixed up with the older ones.

Ans. A) Both A and R are true and R is the correct explanation of A.

14. The child can reason logically about concrete events and classify objects into different sets, is able to perform reversible mental operations on representations of objects. This is an example of _____ Stage of cognitive development. **1**

Ans. B) Concrete operational

15. A test is divided into two equal halves employing odd even method and correlation is computed between the scores of odd and even items. It is the representation of which method? **1**

Ans. C) Split-half

16. In childhood stage, children consider all things as living things. This is called _____. **1**

Ans. A) Animism

17. Information Travels within the nervous system in the form of a _____.

1

Ans. A) Nerve Impulse

SECTION - B

18. Give a brief description of how both genetic and environmental factors affect our development during human development.

2

Ans. Genetic: The actual genetic material or a person's genetic heritage is known as genotype. However, not all of this genetic material is apparent or distinctly identifiable in our observable characteristics.

Phenotype: It is the way an individual's genotype is expressed in observable and measurable characteristics. Phenotypes include physical traits, such as height, weight, eye and skin colour, and many of the psychological characteristics such as intelligence, creativity, and personality. These observable characteristics of an individual are the result of the interaction between the person's inherited traits and the environment.

A child's own genotype (what s/he has inherited) such as being cooperative, and attentive is likely to result in teachers and parents giving more pleasant response as compared to children who are not cooperative or not attentive.

19. Write any two goals of psychological enquiry?

2

Ans. Any two goals:

Description: In a psychological study, we attempt to describe a behaviour or a phenomenon as accurately as possible. This helps in distinguishing a particular behaviour from other behaviours.

Prediction: The second goal of scientific enquiry is prediction of behaviour. If you are able to understand and describe the behaviour accurately, you come to know the relationship of a particular behaviour with other types of behaviours, events, or phenomena. You can then forecast that under certain conditions this particular behaviour may occur within a certain margin of error.

Explanation: The third goal of psychological enquiry is to know the causal factors or determinants of behaviour. Psychologists are primarily interested in knowing the factors that make behaviour occur. Also, what are the conditions under which a particular behaviour does not occur.

Control: If you are able to explain why a particular behaviour occurs, you can control that behaviour by making changes in its antecedent conditions. Control refers to three things: making a particular behaviour happen, reducing it, or enhancing it.

Application: The final goal of the scientific enquiry is to bring out positive changes in the lives of people. Psychological research is conducted to solve problems in various settings. Because of these efforts the quality of life of people is a major concern of psychologists.

20. What is the difference between dependent variable and independent variable?

2

Ans. Independent variable is that variable which is manipulated or altered or its strength varied by the researcher in the experiment. It is the effect of this change in the variable which the researcher wants to observe or note in the study.

Dependent variable represents the phenomenon the researcher desires to explain. It is expected that change in the dependent variable will ensue from changes in the independent variable.

Thus, the independent variable is the cause, and dependent variable the effect in any experimental situation.

21. Explain absolute threshold and difference threshold.

2

Ans. **Absolute threshold:** The minimum value of a stimulus required to activate a given sensory system is called absolute threshold or absolute limen (AL). For example, if you add a granule of sugar to a glass of water, you may not experience any sweetness in that water. Addition of a second granule to water may also not make it taste sweet. But if you go on adding sugar granules one after another, there will come a point when you will say that the water is now sweet. The minimum number of sugar granules required to say that the water is sweet will be the AL of sweetness.

Difference threshold: The smallest difference in the value of two stimuli that is necessary to notice them as different is called difference threshold or difference limen (DL). To understand it, we may continue with our "sugar water" experiment. As we have seen, the plain water is experienced as sweet after the addition of certain number of sugar granules. Let us remember this sweetness. The next question is: how many sugar granules will be needed in the water in order to experience its sweetness as different from the previous sweetness. Thus, difference threshold is the minimum amount of change in a physical stimulus that is capable of producing a sensation difference on 50 per cent of the trials.

SECTION – C

22. Describe three areas of everyday life where understanding of psychology can be put to practice. 3

Ans. **Clinical psychologists** specialise in helping clients with behavioural problems by or fear, or providing therapy for various mental disorders and in cases of anxiety with stresses at home or at work. They work either as private practitioners or at hospitals, mental institutions, or with social agencies.

Counselling psychologists work with persons who suffer from motivational and emotional problems. The problems of their clients are less serious than those of the clinical psychologists. A counselling psychologist may be involved in vocational rehabilitation programmes, or helping persons in making professional choices or in adjusting to new and difficult situations of life.

Community psychologists generally focus on problems related to community mental health. They work for mental health agencies, private organisations and state governments. They help the community and its institutions in addressing physical and mental health problems. In rural areas they may work to establish a mental health centre. In urban areas they may design a drug rehabilitation programme.

School psychologists work in educational systems, and their roles vary according to the levels of their training. For example, some school psychologists only administer tests, whereas others also interpret test results to help students with their problems. They also help in the formulation of school policies.

Organisational psychologists render valuable help in dealing with problems that the executives and employees of an organisation tend to face in their respective roles. They provide organisations with consultancy services and organise skill training programmes in order to enhance their efficiency and effectiveness.

23. Write any three types of data or information to be collected in psychological enquiry. 3

Ans. **i) Demographic Information:** This information generally includes personal information like name, age, gender, birth order, number of siblings, education, occupation, marital status, number of children, locality of residence, caste, religion, parental education, occupation, and family income, etc.

ii) Physical Information: This category includes information about ecological conditions (hilly/desert/forest), mode of economy, housing conditions, size of rooms, facilities available at home, in the neighbourhood, in the school, mode of transportation, etc.

iii) Physiological Data: In some studies physical, physiological and psychological data are collected about height, weight, heart rate, level of fatigue, Galvanic Skin Resistance (GSR), electrical activity of the brain

measured by Electro-encephalograph (EEG), blood oxygen levels, reaction time, duration of sleep, blood pressure, pattern of dream, amount of salivation, running and jumping rates (in case of animal studies), etc., are collected.

iv) Psychological Information: Psychological information collected, may relate to such areas as intelligence, personality, interest, values, creativity, emotions, motivation, psychological disorders, illusions, delusions, hallucinations, perceptual judgment, thought processes, consciousness, subjective experiences, etc.

24. What is neuron? Name its three fundamental components.

3

Ans. Neuron is the basic unit of our nervous system. Neurons are specialised cells, which possess the unique property of converting various forms of stimuli into electrical impulses. They are also specialised for reception, conduction and transmission of information in the form of electrochemical signals. There three fundamental components, i.e.

- (i) Soma:** The soma or cell body is the main body of the nerve cell. It contains the nucleus of the cell as well as other structures common to living cells of all types. The genetic material of the neuron is stored inside the nucleus and it becomes actively engaged during cell reproduction and protein synthesis. The soma also contains most of the cytoplasm (cell- fluid) of the neuron.
- (ii) Dendrites:** Dendrites are the branch- like specialised structures emanating from the soma. They are the receiving ends of a neuron. Their function is to receive the incoming neural impulses from adjacent neurons or directly from the sense organs. On dendrites are found specialised receptors, which become active when a signal arrives in electrochemical or biochemical form. The received signals are passed on to soma and then to axon so that the information is relayed to another neuron or to muscles.
- (iii) Axon:** The axon conducts the information along its length, which can be several feet in the spinal cord and less than a millimeter in the brain. At the terminal point the axon branches into small structures, called terminal buttons. These buttons have the capability for transmitting information to another neuron, gland and muscle. Neurons generally conduct information in one direction, that is, from the dendrites through soma and axon to the terminal buttons.

OR

What is socialization? Explain any two socializing agents.

Ans. Socialisation is a process by which individuals acquire knowledge, skills and dispositions, which enable them to participate as effective members of groups and society. It is a process that continues over the entire life-span, and through which one learns and develops ways of effective functioning at any stage of development.

Socialisation Agents: A number of people who relate to us possess power to socialise us. Such people are called "Socialisation agents".

- (i) Parents** have most direct and significant impact on children's development. Children respond in different ways to parents in different situations. Parents encourage certain behaviours by rewarding them verbally (e.g.,praising) or in other tangible ways (e.g., buying chocolates or objects of child's desire). They also discourage certain behaviours through non-approving behaviours. They also arrange to put children in a variety of situations that provide them with a variety of positive experiences, learning opportunities, and challenges. While interacting with children parents adopt different strategies, which are generally known as parenting styles. A distinction is made between authoritative, authoritarian and democratic or permissive parenting styles.

- (ii) **School** is another important socialising agent. Since children spend a long time in schools, which provide them with a fairly organised set up for interaction with teachers and peers, school is today being viewed as a more important agent of child socialisation than parents and family. Children learn not only cognitive skills (e.g., reading, writing, doing mathematics) but also many social skills (e.g., ways of behaving with elders and age mates, accepting roles, fulfilling responsibilities). They also learn and internalise the norms and rules of society. Several other positive qualities, such as self-initiative, self-control, responsibility, and creativity are encouraged in schools.
- (iii) **Peer Group:** One of the chief characteristics of the middle childhood stage is the extension of social network beyond home. Friendship acquires great significance in this respect. It provides children not only with a good opportunity to be in company of others, but also for organising various activities (e.g., play) collectively with the members of their own age. Qualities like sharing, trust, mutual understanding, role acceptance and fulfilment develop in interaction with peers. Children also learn to assert their own point of view and accept and adapt to those of others.
- (iv) **Media:** In recent years media has also acquired the property of a socialisation agent. Through television, newspapers, books and cinema the external world has made/is making its way into our home and our lives. While children learn about many things from these sources, adolescents and young adults often derive their models from them, particularly from television and cinema. The exposure to violence on television is a major issue of P discussion, since studies indicate that observing violence on television enhances aggressive behaviour among children.

SECTION – D

25. Explain any four disciplines with which psychology shares its knowledge.

4

Ans. **Any four disciplines:**

Philosophy: Until the end of the 19th century, certain concerns that are now part of contemporary psychology like, what is the nature of the mind or how do humans come to know their motivations and emotions were the concerns of philosophers.

Medicine Doctors have realised that the maxim, healthy body requires a healthy mind, is actually true. A large number of hospitals now employ psychologists. The role of psychologists in preventing people from engaging in health hazardous behaviours and in adhering to the prescribed doctors' regimen are some of the important areas where the two disciplines have come together. While treating patients suffering from cancer, AIDS, and the physically challenged, or handling patients in the Intensive Care Unit, and patients during post operative care doctors I have also felt the need for psychological counselling.

Economics, Political Science and Sociology: As sister social science disciplines, these three have drawn considerably from psychology and have enriched it as well. Psychology has contributed a great deal to the study of micro-level economic behaviour, particularly in understanding consumer behaviour, savings behaviour and in decision-making. American economists have used data on consumer sentiments to predict economic growth. Three scholars who have worked on such problems have received the Nobel Prize in Economics, namely H. Simon, D. Kahneman and T. Schelling. Like economics, political science too draws considerably from psychology, particularly, in understanding issues related to exercise of power and authority, nature of political conflicts and their resolutions, and voting behaviour. Sociology and psychology come together to explain and understand the behaviour of individuals within different socio-cultural contexts. Issues related to socialisation, group and collective behaviour, and intergroup conflicts gain from both these disciplines.

Computer Science: From the very beginning, the effort of computer science has been in mimicking the human mind. One can see it in terms of how a 'computer' is structured, its memory organised, sequential

and simultaneous (read parallel) processing of information. Computer scientists and engineers are seeking to make computers not only more and more intelligent but also machines which can sense and feel. Developments in both these disciplines have brought about significant advancement in the field of cognitive sciences.

Law and Criminology: A skilled lawyer and a criminologist requires knowledge of psychology in answering such questions as: How well a witness remembers an accident, a street fight, or a murder? How well can s/he report such facts when taking the witness stand in the court? What factors influence the decision which is taken by the jury? What are the dependable signs of guilt and falsehood?

Mass Communication: The print and the electronic media have entered in our lives in a very big way. They have a major influence on our thinking, attitudes and our emotions. If they have brought us closer together, they have also reduced cultural diversities. The impact of media on the formation of attitudes of children and their behaviour is a domain where both these disciplines come together. Psychology also helps in developing strategies for better and effective communication.

Music and Fine Arts: Music and psychology have converged in many areas. Scientists have made use of music in raising work performance. Music and emotions is another area in which a number of studies have been carried out. Musicians in India have recently started experimenting with what they call 'Music Therapy'. In this they use different 'Ragas' for curing certain physical ailments. The efficacy of music therapy still remains to be proven.

Architecture and Engineering: At first glance the relationship between psychology and architecture and engineering would appear improbable. But such is actually not the case. Ask any architect, s/he must satisfy her/his clients by providing mental and physical space through her design and satisfy aesthetically. Engineers must also take into account human habits in their plans for safety, for example, on streets and highways.

OR

Explain any four branches of psychology.

Ans. **Cognitive Psychology** investigates mental processes involved in acquisition, storage, manipulation, and transformation of information received from the environment along with its use and communication. The major cognitive processes are attention, perception, memory, reasoning, problem solving, decision-making and language.

(i) **Biological Psychology** focuses on the relationship between behaviour and the physical system, including the brain and the rest of the nervous system, the immune system, and genetics. Biological psychologists often collaborate with neuroscientists, zoologists, and anthropologists. Neuropsychology has emerged as a field of research where psychologists and neuroscientists are working together. Researchers are studying the role of neurotransmitters or chemical substances which are responsible for neural communication in different areas of the brain and therefore in associated mental functions.

(ii) **Developmental Psychology** studies the physical, social and psychological changes that occur at different ages and stages over a life-span, from conception to old age. The primary concern of developmental psychologists is how we become what we are. For many years the major emphasis was on child and adolescent development. However, today an increasing number of developmental psychologists show strong interest in adult development and ageing. They focus on the biological, socio-cultural and environmental factors that influence psychological characteristics such as intelligence, cognition, emotion, temperament, morality, and social relationship.

- (iii) **Social Psychology** explores how people are affected by their social environments, how people think about and influence others. Social psychologists are interested in such topics as attitudes, conformity and obedience to authority, interpersonal attraction, helpful behaviour, prejudice, aggression, social motivation, inter-group relations and so on.
- (iv) **Cross-cultural and Cultural Psychology** examines the role of culture in understanding behaviour, thought, and emotion. It assumes that human behaviour is not only a reflection of human-biological potential but also a product of culture. Therefore behaviour should be studied in its socio-cultural context. As you will be studying in different chapters of this book, culture influences human behaviour in many ways and in varying degrees.
- (v) **Environmental Psychology** studies the interaction of physical factors such as temperature, humidity, pollution, and natural disasters on human behaviour. The influence of physical arrangement of the workplace on health, the emotional state, and interpersonal relations are also investigated. Current topics of research in this field are the extent to which, disposal of waste, population explosion, conservation of energy, efficient use of community resources are associated with and are functions of human behaviour.
- (vi) **Health Psychology** focuses on the role of psychological factors (for example, stress, anxiety) in the development, prevention and treatment of illness. Areas of interest for health psychologist are stress and coping, the relationship between psychological factors and health, patient-doctor relationship and ways of promoting health enhancing factors.
- (vii) **Clinical and Counselling Psychology** deals with causes, treatment and prevention of different types of psychological disorders such as anxiety, depression, eating disorders and chronic substance abuse. A related area is counselling, which aims to improve everyday functioning by helping people solve problems in daily living and cope more effectively with challenging situations.
- (viii) **Industrial/Organisational Psychology** deals with workplace behaviour, focusing on both the workers and the organisations that employ them. Industrial/organisational psychologists are concerned with training employees, improving work conditions, and developing criteria for selecting employees.
- (ix) **Educational Psychology** studies how people of all ages learn. Educational psychologists primarily help develop instructional methods and materials used to train people in both educational and work settings. They are also concerned with research on issues of relevance for education, counselling and learning problems. A related field, school psychology, focuses on designing programmes that promote intellectual, social, and emotional development of children, including those with special needs.
- (x) **Sports Psychology** applies psychological principles to improve sports performance by enhancing their motivation. Sports psychology is a relatively new field but is gaining acceptance worldwide.

26. What are the four major steps in conducting research?

4

Ans. It includes the following steps: conceptualisation of a problem, collection of data, drawing conclusions, and revising research conclusions and theory.

- (i) **Conceptualising a Problem:** The process of scientific research begins when a researcher selects a theme or topic for study. Then s/he narrows down the focus and develops specific research questions or problems for the study. This is done on the basis of review of past research, observations, and personal experiences.
- (ii) **Collecting Data:** The second step in scientific research is to collect data. Data collection requires developing a research design or a blueprint of the entire study. It requires taking decisions about the following four aspects: (a) participants in the study, (b) methods of data collection, (c) tools to be used

in research, and (d) procedure for data collection. Depending upon the nature of the study, the researcher has to decide who would be the participants (or informants) in the study.

(iii) Drawing Conclusions: The next step is to analyse data so collected through the use of statistical procedures to understand what the data mean. This can be achieved through graphical representations (such as preparation of pie-chart, bar-diagram, cumulative t frequencies, etc.) and by the use of different statistical methods.

(iv) Revising Research Conclusions: The researcher may have begun the study with a hypothesis that there exists a relationship between viewing violence on television and aggression among children. S/he has to see whether the conclusions support this hypothesis. If they do, the existing hypothesis/ theory is confirmed. If not, s/he will revise or state an alternative hypothesis/theory and again test it based on new data and draw conclusions which may be verified by future researchers.

27. Explain any four features of human development.

4

Ans. Development is the pattern of progressive, orderly, and predictable changes that begin at conception and continue throughout life. Development mostly involves changes both growth and decline, as observed during old age.

Any four features of Human Development:

- (i) Lifelong
- (ii) Various Processes
- (iii) Multi-directional
- (iv) Highly plastic
- (v) Historical Conditions
- (vi) Concern of a Number of discipline
- (vii) Various contexts

28. What is visual adaptation? Describe its two types.

4

Ans. **Visual adaptation:** The process of getting adjusted to different intensities of light is called visual adaptation'.

Light adaptation refers to the process of adjusting to bright light after exposure to dim light. This process takes nearly a minute or two.

Dark adaptation refers to the process of adjusting to a dimly illuminated environment after exposure to bright light. This may take half an hour or even longer depending on the previous level of exposure of the eye to light.

The rods have a photo-sensitive chemical substance, called rhodopsin or visual purple. By the action of light the molecules of this chemical substance get bleached or broken down. Under such conditions the light adaptation takes place in the eyes. On the other hand, the dark adaptation is achieved by the removal of light, and thereby allowing for restorative processes to regenerate the pigment in the rods with the help of vitamin A. The regeneration of rhodopsin in rods is a time consuming process. That is why dark adaptation is a slower process than light adaptation. It has been found that people who suffer from vitamin A deficiency do not achieve dark adaptation at all, and find it really difficult to move in the dark. This condition is generally known as night blindness. A parallel chemical believed to be found in cones is known as iodopsin.

29. Write the four types of long term memory.

4

Ans. **Long-term Memory:** Materials that survive the capacity and duration limitations of the STM finally enter the long-term memory (abbreviated as LTM) which has a vast capacity. It is a permanent storehouse of all information that may be as recent as what you ate for breakfast yesterday to as distant as how you celebrated your sixth birthday. It has been shown that once any information enters the long-term memory store it is never forgotten because it gets encoded semantically, i.e. in terms of the meaning that any information carries.

One major classification within the LTM is that of **Declarative and Procedural** (sometimes called nondeclarative) memories.

- (i) **Declarative memory** All information pertaining to facts, names, dates, such as a rickshaw has three wheels or that India became independent on August 15, 1947 or a frog is an amphibian or you and your friend share the same name, are part of declarative memory.
- (ii) **Procedural memory**, on the other hand, refers to memories relating to procedures for accomplishing various tasks and skills such as how to ride a bicycle, how to make tea or play basketball. Facts retained in the declarative memory are amenable to verbal descriptions while contents of procedural memory cannot be described easily.

Another major classification within the LTM is:

- (i) **Episodic memory** contains biographical details of our lives. Memories relating to our personal life experiences constitute the episodic memory and it is for this reason that its contents are generally emotional in nature. Although such experiences are hard to forget, yet it is equally true that many events take place continuously in our lives and that we do not remember all of them. Besides, there are painful and unpleasant experiences which are not remembered in as much detail as pleasant life experiences.
- (ii) **Semantic memory**, on the other hand, is the memory of general awareness and knowledge. All concepts, ideas and rules of logic are stored in semantic memory. For instance, it is because of semantic memory that we remember the meaning of say 'non-violence' or remember that $2+6=8$ or the STD code of New Delhi is 011 or that the word 'elephant' is misspelt.

30. What is verbal learning? What are the methods used in studying verbal learning?

4

Ans. **Verbal learning** is different from conditioning and is limited to human beings. Human beings, as you must have observed, acquire knowledge about objects, events, and their features largely in terms of words. Words then come to be associated with one another.

METHODS:

- (i) **Paired-Associates Learning:** This method is similar to S-S conditioning and S-R learning. It is used in learning some foreign language equivalents of mother tongue words. First, a list of paired-associates is prepared. The first word of the pair is used as the stimulus, and the second word as the response. Members of each pair may be from the same language or two different languages.
- (ii) **Serial Learning:** This method of verbal learning is used to find out how participants learn the lists of verbal items, and what processes are involved in it. First, lists of verbal items, i.e. nonsense syllables, most familiar or least familiar words, interrelated words, etc. are prepared. The participant is presented the entire list and is required to produce the items in the same serial order as in the list. In the first trial, the first item of the list is shown, and the participant has to produce the second item. If s/he fails to do

so within the prescribed time, the experimenter presents the second item. Now this item becomes the stimulus and the participant has to produce the third item i.e. that is the response word. If s/he fails, the experimenter gives the correct item, which becomes the stimulus item for the fourth word. This procedure is called serial anticipation method. Learning trials continue until the participant correctly anticipates all the items in the given order.

(iii) Free Recall: In this method, participants are presented a list of words, which they read and speak out. Each word is shown at a fixed rate of exposure duration. Immediately after the presentation of the list, the participants are required to recall the words in any order they can. Words in the list may be interrelated or unrelated. More than ten words are included in the list. The presentation order of words varies from trial to trial. This method is used to study how participants organise words for storage in memory.

SECTION – E

31. Describe the structure and functioning of human eye with the help of diagram.

6

Ans. **STRUCTURE OF EYE:**

- ▶ **Cornea & Sclera-** outer layer, which protects eye & maintain its shape.
- ▶ **Choroid-** richly supplied with blood vessels.
- ▶ **Retina-** inner layer, which contains photoreceptors & elaborate network of interconnecting neurons.
- ▶ **Lens-** two unequal chambers, i.e.
 - ❖ **Aqueous Chamber** located between cornea & lens, and filled with water like substance called Aqueous humour.
 - ❖ **Vitreous Chamber** located between lens and retina, and filled with jelly like substance called Vitreous humour.
- **Ciliary Muscles-** attached to lens, and through which the lens changes its shape in order to focus the objects at varying distances.
- **Iris-** disc-like coloured membrane between cornea & lens, which controls the amount of light entering the eye by regulating pupil dilation.
- ▶ **Retina-** inner most layer, contains bundles of axons that forms optic nerves & reaches the brain, & has five types of photosensitive cells, mainly Rods & Cones:
 - ❖ **Rods (100 Million)-** receptors for night vision
 - ❖ **Cones (7 Million) -** receptors for day vision
- ▶ **Fovea-** smaller circular region, & size of pea, & also called yellow spot (i.e. region of max. visual acuity).

FUNCTION OF EYE:

Passing through conjunctiva, cornea, and pupil, the light enters the lens, which focuses it on to the retina. Retina is divided into two parts: the nasal half and the temporal half. The inner half portion of the eye (towards the nose), taking the center of fovea as mid-point, is called the nasal half. The outer half portion of the eye (towards the temple) from the center of fovea is called the temporal half. Light from the right visual field stimulates the left half of each eye (i.e. the nasal half of the right eye and the temporal half of the left eye), and light from the left visual field stimulates the right half of each eye (i.e. the nasal half of the left eye and the temporal half of the right eye). An inverted image of the object is formed on the retina. The neural impulse is transmitted to the visual cortex through the optic nerve where the image is re-inverted and processed.

OR

Describe the structure and functioning of human ear with the help of diagram.

Ans. **STRUCTURE OF EAR:**

The structure of an ear is divided into three segments, called the external ear, the middle ear, and the inner ear:

- (i) **External Ear:** It contains two main structures, namely pinna and auditory meatus. Pinna is a cartilaginous funnel-shaped structure that collects sound waves from the surroundings. Auditory meatus is a canal protected by hair and wax that carries sound waves from pinna to the tympanum or ear drum.
- (ii) **Middle Ear:** The middle ear starts with tympanum, a thin membrane highly sensitive to sound vibrations. This is followed by the tympanic cavity. It is connected to the pharynx with the help of Eustachian tube, which maintains the air pressure in tympanic cavity. From the cavity the vibrations pass to three ossicles known as malleus (hammer), incus (anvil), and stapes (stirrup). They increase the intensity of sound vibrations about 10 times, and send them to the inner ear.
- (iii) **Inner Ear:** The inner ear has a complicated structure known as membranous labyrinth which is encapsulated in a bony shell called bony labyrinth. A lymph-like fluid is found in the space between bony labyrinth and membranous labyrinth. This is called perilymph. The bony labyrinth has three semi-circular canals at right angle to each other, a cavity, called vestibule, and a coiled structure, called cochlea. The semicircular canals have fine hair cells, which are highly sensitive to postural changes as well as changes in the body orientation. Inside the bony cochlea, there is a membranous cochlea, which is also known as scala media. It is filled with endolymph, and has a spirally coiled membrane, called basilar membrane. It has got fine hair cells arranged in a series to form the organ of Corti. This is the main organ for hearing.

FUNCTIONING OF EAR:

Pinna collects the sound vibrations and serves them to the tympanum through the auditory meatus. From the tympanic cavity the vibrations are transferred to the three ossicles, which increase their strength and transmit them to the inner ear. In the inner ear the cochlea receives the sound waves. Through vibrations the endolymph is set in motion, which also vibrates the organ of Corti. Finally, the impulses are sent to the auditory nerve, which emerges at the base of cochlea and reaches the auditory cortex where the impulse is interpreted.

32. Write a note on developmental changes of human during infancy stage.

6

Ans. **DEVELOPMENTAL CHANGES IN INFANCY:**

- (i) **Motor Development:** The newborn's movements are governed by reflexes which are automatic, built-in responses to stimuli. They are genetically-carried survival mechanisms, and are the building blocks for subsequent motor development. Some reflexes present in the newborn, coughing, blinking, and yawning persist throughout their lives. Newborns prefer to look at some stimuli rather than others such as faces, although these preferences change over the first few months of life. The newborn's vision is estimated to be lower than the adult vision. By 6 months it improves and by about the first year, vision is almost the same as that of an adult. They might be able to distinguish between red and white colours but in general they are colour deficient and full colour vision develops by 3 months of age. Infants can hear immediately after birth. As the infant develops, proficiency at localising sound improves. Newborns respond to touch and they can even feel pain. Both smell and taste capacities are also present in the newborn.
- (ii) **Cognitive Development:** As children grow, additional information is acquired and they adapt their thinking to include new ideas, as this improves their understanding of the world. Piaget believed that a child's mind passes through a series of stages of thought from infancy to adolescence. The child during infancy, i.e. the first two years of life, experiences the world through senses and interactions with

objects through looking, hearing, touching, mouthing, and grasping. The newborn lives in the present. What is out of sight is out of mind. According to Piaget, children at this stage do not go beyond their immediate sensory experience, i.e. lack object permanence the awareness that the objects continue to exist when not perceived. Gradually by 8 months of age the child starts pursuing the object partially covered in her/his presence. The basis of verbal communication seems to be present in infants. Vocalisation begins with the infant's babbling, sometime between 3 to 6 months of age.

(iii) Socio-emotional Development: Babies from birth are social creatures. An infant starts preferring familiar faces and responds to parent's presence by cooing and gurgling. They become more mobile by 6 to 8 months of age and start showing a preference for their mother's company. When frightened by a new face or when separated from their mother, they cry or show distress. On being reunited with "the parent or caregiver they reciprocate with smiles or hugs. The close emotional bond of affection that develop between infants and their parents (caregivers) is called attachment.

OR

Write a note on developmental changes of human during childhood stage.

Ans. **Childhood stage:** The child develops physically, gains height and weight, learns to walk, runs, jumps, and plays with a ball. Socially, the child's world expands from the parents to the family and adults near home and at school.

(i) Physical Development: Early development follows two principles: (i) development proceeds **cephalocaudally**, i.e. from the cephalic or head region to the caudal or tail region. Children gain control over the upper part of the body before the lower part. This is why you would notice that the infant's head is proportionately larger than her/his body during early infancy or if you see an infant crawling, s/he will use the arms first and then shift to using the legs, (ii) growth proceeds from the centre of body and moves towards the extremities or more distal regions - the **proximodistal** trend, i.e. children gain control over their torso before their extremities. Initially infants reach for objects by turning their entire body, gradually they extend their arms to reach for things.

(ii) Motor Development: Gross motor skills during the early childhood years involve the use of arms and legs, and moving around with confidence and more purposefully in the environment. Fine motor skills - finger dexterity and eye-hand coordination improve substantially during early childhood. During these years the child's preference for left or right hand also develops.

(iii) Cognitive Development: The child's ability to acquire the concept of **object permanence** enables her/him to use mental symbols to represent objects. However, the child at this stage lacks the ability that allows her/him to do mentally what was done physically before. Cognitive development in early childhood focuses on Piaget's stage of preoperational thought. The child gains the ability to mentally represent an object that is not physically present. This ability of the child to engage in symbolic thought helps to expand her/his mental world. A salient feature of preoperational thought is **egocentrism** (self-focus), i.e. children see the world only in terms of their own selves and are not able to appreciate others' point of view. Children because of egocentrism, engage in **animism** thinking that all things are living, like oneself. They attribute life-like qualities to inanimate objects. Another feature of thought during preoperational stage is characterised by children having a tendency for **centration**, i.e. focusing on a single characteristic or feature for understanding an event. As the child grows and is approximately between 7 and 11 years of age (the period of middle and late childhood) intuitive thought is replaced by logical thought. This is the stage of concrete operational thought, which is made up of operations - mental actions that allow the child to do mentally what was done physically before. Concrete operations are also mental actions that are reversible.

(iv) Socio-emotional Development: The important dimensions of children's socio- emotional development are the self, gender and moral development. During the early years of childhood, some important developments in the self take place. The child due to socialisation has developed a sense of who s/he is and whom s/he wants to be identified with. The developing sense of independence makes children do things in their own way.

(v) Moral Development: Another important aspect of the child's development is learning to differentiate between the rightness or wrongness of human acts. The way children come to distinguish right from wrong, to feel guilty, to put themselves in other people's position, and to help others when they are in trouble, are all components of moral development.

_____THE END_____