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chapter No-19	Behaviour
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Q1 what is behaviour. Explain the nature of behaviour.

Answer: Behaviour:

Definition:- The action or response that organism do against a specific stimuli is called behaviour. — OR —
“Behaviour is the aggregate of responses to the stimuli”-OR-
“Behaviour is what animal does and how he or she does it.”

Ethology:- Scientific study of behaviour is called Ethology.

Example of behaviour:- Eating, walking, sleeping, mating and rearing of young-ones are various types of behaviour.

Nature of behaviour:-

Introduction:- Behaviour may be of different nature. Some time it may be a very specific and fixed responses (called-innate behaviour), where as sometime it may be learn through training (called learning behaviour). However, the nature of behaviour greatly depend upon the intensity and type of stimulus. There are two types of to which an organism shows response i.e- External stimulus and internal stimulus.

Explanation:- behaviour nature depend on the following factors.

1: Behaviour and Stimulus:-
any change that evokes a specific functional reaction in an organ or tissue is called stimulus. while any thing that plants or animals do after being stimulated is a part of its —

behaviour. However, every organism respond in various - patterns to same stimulus.

For example :- Behaviour may be even simple like plant <or stem> growth towards light upto very complex like - sexual behaviour and defence of territory mark or courtship in bird like cock <male chicken>.

2: Effects of genetics on behaviour:

Francis Gutton :- According to Francis Galton, behaviour is under the control of genes. only the genes can determine the kind of behaviour. Even members of the same species vary in behaviour because of variation in their genes.

Darwin's theory of natural selection :- According to Darwin's theory of nature selection, if an organism wants to survive in a new area it must bring changes in its behaviour. These changes in behaviours occur only when an organism changes its genetics. if an organism changes its behaviour according to changed environmental conditions it enjoy survive and - continue its race, but if not will be perished.

For example : - <curiosity>

Curiosity is eager to learn something. Some organisms are more curious than other. It is because, the genes and heredity has important role in intelligence and curiosity, moodiness, shyness and impulsiveness <quick response without - thinking>.

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Q2 what is biological Rhythms. write its types with example.		
<u>Answer: Biological Rhythms:</u>		
<u>Definition:-</u> Repeation of behaviour after certain peroid of time is called biological rhythms.		
<u>For example :-</u> The behaviour of an organism may repeat - after 24-hours, Lunar month, each year or with tides in oceans.		
<u>Biological clock:</u>		
<u>Definition:-</u> An innate mechanism which ^{function} controls ¹ of an organism which change on daily, seasonal, annual or other regular cycles is called biological clock.		
<u>Explanation:-</u> Each organism has the power of sensation in its brain, which compels the animal to perform their behaviour when suitable time for that behaviour comes into being. This power of Sensation is called biological clock.		
<u>Example:-</u> within 24-hours-cycle each group of organism have specific time to do their activities.		
<u>Types of Biological rhythms:-</u> on the basis of biological-clock the biorhythms are categorized into the following types.		
<u>1: circadian rhythm:</u> (ETEA-2011)		
<u>meaning :-</u> circadian is a Latin word means - "circa" - about, "die" - day.		
<u>Definition :-</u> The repeated sequences of events which occur at about 24-hours interval is called circadian rhythm.		
<u>Classification of animals on the basis of circadian rhythm:-</u>		
on the basis of circadian rhythm animals may be —.		

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<u>i: Diurnal</u> :- Those animals having their greatest degree of activities during day time are known as diurnal. <u>Example</u> :- 1- Diurnal variations in pigmentation in insects. 2- In Rabbit and mouse, the deposition and utilization of glycogen in the Liver is diurnal. 3- many small marine organisms (fishes) go to deeper water during the day time. as many large fishes feed on them and come to the surface at night time. (ETEA-2006)		
<u>ii: Corpuscular</u> :- Those animals having greatest degree of activities ^{during} twilight hours are known as corpuscular. <u>Example</u> :- Snakes, Lizards, woodcock, moths, flies, beetles.		
<u>iii: Nocturnal</u> :- Those animals which having greatest degree of activities during night are known as nocturnal. <u>Example</u> :- Bats, Turtle, Spiny ant eater.		
<u>2: Circannual Rhythm</u> : <u>meaning</u> :- circa mean about and annual mean year. <u>Definition</u> :- The repetition of sequence of activities after one complete year is called circannual rhythm. <u>For example</u> :- 1- Breeding seasonal mating in higher domestic animals. 2- During hibernation some animals conceal in winter season in order to cope with cold condition. 3- During aestivation some animals conceal to cope with hot and dry conditions.		

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4- Fishes and birds have migration behaviour in particular - seasons of year. 5- Adult form of many insects and some plants die at the end of each summer and the species is carried over the winter in the form of eggs or pupae and seeds. These again reappear during spring season. <u>Evolution of biological rhythms:</u> <u>Introduction:-</u> Biological rhythms is not thoroughly fixed throughout the life. It progresses with the time and a time may reach when organism will do possesses or well - develop power of sensation to environmental stimulus in the form of biological clock. <u>For example :-</u> Honey bees are not only able to find their way to stimulus (here stimulus mean food) but they also use sun position and light direction to reach their target. <u>Experimental work :-</u> Experiment was performed on honey bees. i.e- 1: Four feeding tables were setup at 50-meters to — North—west, North—east, south—west and south—east directions 2: The bees were released in the morning. These honey bees use the sun—rays (morning time) and they flew towards north—west. 3: It shows that bees use light as a direction to reach target. 4: It was also detected that bees go in search of food during specific hours of the day which means that they know -		

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which time is best for nector secretion by plants.

5: All the above activities were made possible because of - developed and healthy biological clocks.

Significance:- such evolution of biological rhythm enable the bees to find out best time of day to visit a plant and get nectar:

Q3 what is innate behaviour. write its characteristics.

Answer:- Innate behaviour:

Definition :- Those behaviour which are inherited from - parents and needs no training is called innate / inborn Beh;.

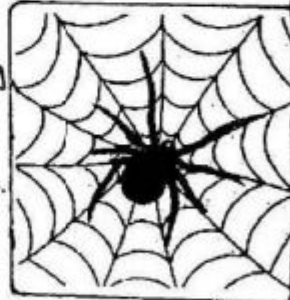
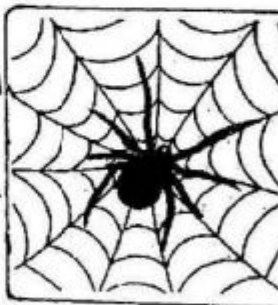
Explanation:- The innate behaviour is completely based on genetics and involves no training and even contact with member of the same species is also not required. It is therefore, also called instinctive-behaviour.

Characteristics of innate behaviour:

- 1: These are built in nervous system during Embryonic period <development>.
- 2: It is automatic and machine like in nature.
- 3: These behaviours cannot be forgotten.
- 4: These have survival values for the species.
- 5: Innate behaviour is by birth (congenital) and inborn.
- 6: Innate behaviour is unlearned behaviour.

Example of innate behaviour: (ETEA-2011)

1: Honey bee :- A honey bee inherits the tendency to fly —



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toward flower to seek nectar.		
2: <u>Duck</u> :- A young duck starts swimming without any experience.		
3: <u>Spider</u> :- A young spider spins and weaves a web in its first attempt.		
4: <u>Caterpillar</u> :- a caterpillar (insect) will form a cocoon - (cover) around themselves to protect themselves while they grow.		
5: <u>Bird</u> :- A pair of young bird can build a nest.		
6: <u>chick</u> :- A day old chick will peck at objects on the ground.		
7: <u>migration</u> :- migration of birds is also innate behaviour.		
8: <u>Sucking</u> :- Sucking-reflex in human baby is also innate Beh;		
9: <u>Draw hand</u> :- with drawl of hand by touching a hot surface.		
<u>Nature of innate behaviour:</u>		
In general, innate behaviour will always be -		
1- <u>Heritable</u> :- Innate behaviour is always encoded by DNA (or genes) and pass from generation to generation through genes.		
2- <u>Intrinsic</u> :- Innate behaviour is such behaviour which can be performed by an organism even if it is kept isolated from his own family members.		
3- <u>stereotypic</u> :- Stereotypic mean each individual perform the behaviour in the same way at each time.		
4- <u>Inflexible</u> :- They are fixed and are not change or modified by experience and development.		
5- <u>Consummate</u> :- Consummate means that innate behaviour are fully developed from start and perfect at first — performance.		

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Ethogram:

Definition :- A set of innate behaviour is called ethogram.

Explanation :- Each organism inherit ethogram from parents in the same way just like skin-colour, hair-colour, etc. As innate behaviour is encoded in DNA (genes), so it exposed to mutation, genetic-recombination and natural selection. just like physical traits, they are helpful in adaptation of an individual.

Q4 Describe the different types of innate behaviour.

Answer: Types of innate behaviour:

Innate behaviour have the following types.

1: Reflexes:

Definition :- Any sudden, involuntary and automatic response to a stimulus is called reflex or reflex action.

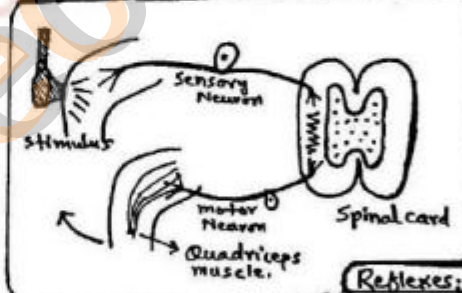
Reflex arc :-

The pathway follow by reflex-action is called reflex arc.

Basic unit :- A simple reflex is the basic unit of innate Beh;

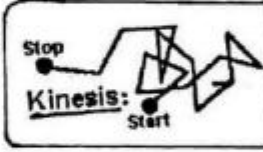
Component of reflex arc :- Reflex arc are generally consist of all basic components of nervous coordination (i.e- Receptor, Sensory neuron, associative neuron, motor neuron, and effector).

In case of simple reflex action only two types of neurons are involved i.e- sensory neuron which detects stimulus and -



The diagram illustrates a reflex arc. A stimulus (a hammer hitting a knee) is shown. A sensory neuron carries the signal to the spinal cord. A motor neuron then carries the signal back to the quadriceps muscle, causing it to contract. The entire pathway is labeled 'Reflexes'.

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motor neuron which activates effectors (muscle or gland) for action. <u>Example:-</u> Knee-jerk, blink of eyes, sneezing, salivation, movement of diaphragm during breathing. <u>Explanation of example:-</u> < patellar reflex - knee jerk > 1: Let a general example of knee jerk called as patellar - Reflex in which stretching the muscle at the front of thigh by tapping its tendon below the knee cap cause reflex contraction of the muscle so that the leg kicks. 2: The tap initiate an action-potential in muscle spindle - within the Quadriceps. 3: This action-potential is send to spinal cord through sensory neuron onto motor neuron through neurotransmitter (glutamate). 4: The motor neuron stimulates quadriceps of front thigh to contract and hence lower leg is extended forward.		
<u>1: startle reflexes:-</u> most insects have simple startle - reflexes (defensive) triggered by small disturbance. <u>2: Escape reflexes:-</u> Insects have also more comprehensive complex escape-reflexes triggered by large disturbance.		
<u>2: orientation Behaviour:</u> <u>Definition:-</u> Any change in the direction or movements of an organisms in response to external stimuli is called orientation beh. <u>Importance:-</u> orientation behaviours are very important		

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because they possess adaptive values for survival of - organisms to locate or avoid the source of stimulus. <u>Types of orientation behaviour:</u> <u>i: Kinesis :</u> <u>meaning :-</u> Kinesis is Greek word which mean movement. <u>Definition :-</u> Change in the speed of movement or change in the rate of turning is called kinesis. <u>Non-directional :-</u> Kinesis is actually non-directed orientation. Kinesis is directly proportional to the intensity of stimulus. <u>Types of Kinesis :-</u> Kinesis has two types i.e - <u>a: orthokinesis :-</u> If the organism is changing its speed of - movement in response to stimulus then it is called orthokinesis. <u>b: Klinokinesis :-</u> If the organism is changing its rate of turning in response to stimulus - is called Klinokinesis.		
<u>ii: Taxis:</u> <u>Definition :-</u> The movement of organism as a whole toward or away from stimulus is called taxis. <u>Types of Taxis :-</u> Taxis has two types. i.e - <u>a: positive taxis :-</u> if the organism is moving toward stimulus +ve - taxis. <u>b: negative taxis :-</u> if the organism is moving away from stimulus - is called negative taxis. e.g: Mosquitoes move away from chemicals. <u>Stimulus dependent :-</u> Different stimulus produce different types taxis such as - phototaxis (a reaction to light), chemotaxis (a - reaction to chemicals), etc.		 e.g: moths or Houseflies show a +ve response to light.

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3: Tropic Movement: <Tropism>		
Definition:- It is the directional movement of organism or a part of organism in response to external stimuli.		
Direction of movement:- Tropic movements are usually performed by plants organs (i.e.-roots or shoots) and the direction of movement is determined by the direction of stimulus (i.e.- Light, gravity or water).		
Types of tropic movement:		(Nastic movement is non-directional responses to environmental stimulus)
Tropism or tropic movements are classified as under -		
i: Geotropism: <Geo mean earth/gravity>		
Definition:- The directional movement of a part of plant in response to gravity is called geotropism.		
Occurance:- This type of movement occurs in radially symmetrical organs like - root and stem (due to Auxin).		
Types of geotropism:- Geotropism his two types.		
a: positive Geotropism:- The movement of plant organs towards the gravity is called positive geotropism. e.g.-root growth		
b: Negative Geotropism:- The movement of plant organs against the gravity is called negative geotropism. e.g.- stem growth.		
ii: phototropism:		(Thigmonastic movement occur in response to touch stimulus.)
Definition:- The directional movement of organism or part of organism in response to stimulus of light is called phototropism.		
Movement of curvature:- phototropism is curvature induced in plant organs in response to unilateral effect of light.		

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The curvature is due to greater growth on the shaded side than on the side which the light out (due to Auxin). <u>Types of phototropism</u>:- phototropism has two types. i.e.- a: <u>positive phototropism</u>:- If the organ or part of plant move towards light, it is called positive phototropism. e.g- stem. b: <u>Negative phototropism</u>:- If the organ or part of plant move away from light, it is called negative phototropism. e.g- Root. (Nyctinastic movement occurs in response to the daily cycle of light and dark.)		
Q5 what is Learning behaviour. write its characteristics.		
Answer: Learning behaviour:		
<u>Definition</u>:- Modification of behaviour according to experience or training is called Learning behaviour.		
<u>Explanation</u>:- Learning behaviour directly depends upon experience in life as well as the development and evolution of nervous system. more is the ability of learning more advanced will be the behaviour. It means that Learning behaviour is more complex and developed in higher animal. where as it is poorly develop in lower animals (invertebrates)-		
<u>Origination of learning behaviour</u>:-		
Each and every individual start its life with a clean state. with the passage of time the animal then develop new skills and knowledge (i.e-behaviour) through trial and error or by observation of other individuals or even memory of past events in his or her life. Such type of skill which develop		

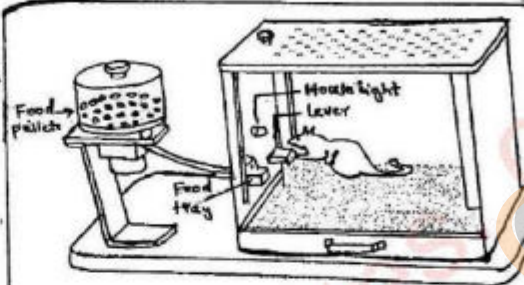
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during life time is called learning behaviour. <u>Characteristics of Learning behaviour</u> :- In general, learning behaviour has the following common characters. 1: <u>Non-heritable</u> :- Learning cannot be transfer from parents to offsprings because it acquired by a person in his life and not encoded by its DNA (genes). 2: <u>Extrinsic</u> :- Learning behaviour is not present in animal raised in isolation from it own species members. 3: <u>permutable</u> :- The pattern of sequence may change overtime. 4: <u>Adaptable</u> :- It always modified to suit changing conditions. 5: <u>progressive</u> :- Learning become more improved by practice. Q6 Describe the different types of Learning behaviour. <u>Answer: Types of Learning behaviour:</u> Learning behaviour have the following different types - 1: <u>Habituation</u> : (ETEA-2019) <u>Definition</u> :- It is the simplest form of learning that involves modification of behaviour through a decreases of response to repeated stimuli or unimportant stimulus. <u>simplest behaviour</u> :- It is an extremely simple form of learning in which an animal, after a peroid of exposure to a stimulus, stop responding. <u>Explanation</u> :- During habituation the sensory neurons stops further sending signals to CNS (Brain) even the repeated		

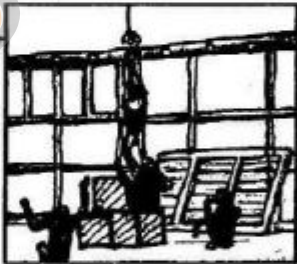
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Stimulus is continuous. Habituation allows animals-nervous-system to focus on stimulus that signal the presence of food, a mate or real-danger, rather than waste time or energy on stimulus that are irrelevant to animals survival and reproduction.		
<u>Example of Habituation:</u>		
<u>1- Strong odour :-</u> Dung has strong repelling odour which can easily be sensed and people respond to this odour (stimulus) in the form of leaving the place. But one may have observed - that people living in village usually deals with dung to form dung-cakes without any response to its strong repelling odour because of repeated exposure to that stimulus (odour)		
<u>2- Urban squirrels :-</u> In urban area animals experience frequent exposure to humans and as result often behave differently than - those in less urban areas exhibiting less vigilance or anti-predator behavior. For example, urban squirrels exhibited reduced - vigilance and anti-predator behavior compared to those in less urban areas.		
<u>Importance :-</u> organisms paying no attention to repeated - stimuli can be useful in preventing wastage of energy and - preventing attention for unimportant stimulus.		
<u>2: Imprinting:</u>		
<u>Definition :-</u> Imprinting is a form of learning in which an animal forms an association with other animal or object in the - environment during sensitive-period of development.		

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<u>Explanation :-</u> <critical period> Imprinting behaviour — Includes both innate and learning components. Both the genetic and environmental conditions effects on imprinting. imprinting behaviour especially develops in brief sensitive — period called critical period. Sensitive period is a limited — developmental duration <phase> in which certain behaviour can be learned or developed.		
<u>Work of Lorenz :-</u> In 1930, K. Lorenz, showed the imprinting behaviour in geese is a near by object that is moving away from young goose-<large water bird, larger than duck>.		
<u>Explanation of Lorenz work :-</u>		
1- when incubator hatched goose spent their first few hours <i.e- sensitive period> with Lorenz, rather than with a goose <i.e- mother or other adult goose>, They imprinted with him and followed him from then on.		
2- Further more, they showed no recognition of their biological mother or other adults of their own species, because they have seen Lorenz during hatching instead of their original — mother.		
<u>Advantages of imprinting :-</u> Imprinting has survival value because it ensures that the young bird will not wander away from their mother's protection because it makes strong — associations between mothers and their children.		
3: <u>Classical conditioning :-</u> <Type-2. learning>		
<u>Definition :-</u> To getting of response to artificial stimulus by		

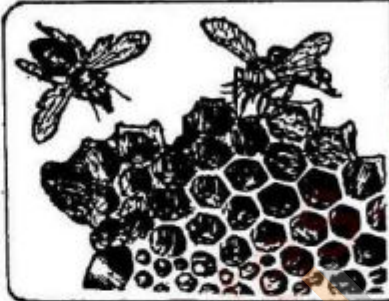
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associating it with a natural stimulus is called classical conditioning. <u>Work of pavlov :-</u> Classical conditioning was first - Studied or demonstrated by a Russian psychologist - I.P. pavlov. He experimented on a dog and observed that how dog learn to associate one type of stimulus with another in order to show response. <u>Explanation of pavlov work :-</u> 1:- pavlov found out that when food (stimulus) was presented to dog, the dog started salivating. 2: He then added a new stimulus, the sound of metronome - < a device which make a regular and repeated sound > at the time the food was provided. 3: After the two stimulus had been presented jointly five to six times, the saliva began to produce. 4: After that pavlov found that the dog salivated when - hearing the sound of metronome even in the absence of food. 5: This was because dog had associated metronome sound to food as both of them were stimuli, for it at the same time, so when metronome was sounded, he felt that food was coming and began to salivate. 6: Thus, dog gave response to an artificial stimulus (sound) but associated it with natural stimulus (food). <u>conditional learning :-</u> As the sound of metronome was - conditioned with food, so such modification of behaviour is also called conditional learning.		

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<u>Importance</u> :- This type of learning broadens the ability of an organism to react appropriately to environmental changes.		
4: Instrumental learning: <operant Learning>		
<u>Definition</u> :- It is a special behaviour which can be learnt by an animal by training and operating the process in response to get reward.		
<u>Explanation</u> :- In this type of learning organism learns to perform behaviour that produces certain rewarding effect on environment. These behaviour operate on the environment to produce rewarding consequences. organism acquires - responses or develops skills that lead to reinforcement that increase the frequency of the behaviour that precedes it.		
<u>Reward</u> :- Reward is a pleasant stimulus that increases the frequency of behaviour.		
<u>Good consequences</u> :- if the consequence of the action or behaviour is good for the animal is called good consequence or Reward. now the animal will perform the same action or - behaviour again and again in order to get reward. Good - consequences of action are followed by positive feedback.		
<u>Bad consequences</u> :- These consequences of action or behaviour are followed by negative feedback due to which frequency of behaviour decreases and the chance of occurrence of that behaviours decrease in future.		
<u>Work of Skinner's</u> :- An american biologist F.F. Skinner's		

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Studied a behaviour in hungry rats. He demonstrated that trial and error — repetitions, step by step, lead to final achievement. <u>Explanation of Skinner work:</u>	 Skinner experiment: (shaping)	
1: When the rat is initially put in the Skinner-box, it did not know that it has to push the lever to get food. 2: Whenever, the rat touched the lever by accident, it received a pellet of dried food. 3: After many mistakes the hungry rat learned about the pressing of lever and to get food material. It is called operating conditioning. 4: In this case food is a reward (good consequence) of action (pressing lever) which increases the frequency of behaviour. (pressing lever) 5: Thus rat modified its behaviour on training and observing the consequence of its action called instrumental learning.		
<u>Example No-2: (Cockroaches)</u> Cockroaches learn to run through a simple maze to find food is a simple example of instrumental or operating learning.		
<u>5: Insight Learning: (ETEA-2014)</u> <u>Definition:-</u> The ability of an animal to respond correctly to a stimulus never experienced before is known as insight L; -OR- " Learning by insight is the ability of the animal to		

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find the solution of the problem suddenly by mental ability, never experienced before."		
<u>Complicated behaviour</u> :- insight learning is an extreme - case of behavioural modification involving the application of insight or reasoning to a new situation.		
<u>Explanation</u> :- In this type of learning animal use its own judgment to solve a problem, unlike by trial and error.		
However, actual experience is not involve in this type of learning		
<u>work of Kohler</u> :- The classical example of insight learning in animals come initially from the work of Kohler on chimpanzee.		
<u>Explanation of Kohler work</u> :		
1: Kohler first hanged a bunch of bananas from ceiling of a room out of reach of chimpanzees.		
2: There were some wooden boxes and sticks scattered in the same room.		
3: He then allowed chimpanzees to get bananas.		
4: chimpanzees first used stick to hit it down but suddenly they came to know that they can reach bananas easily if boxes are placed one above the other, they did so and got that bananas.		
5: Kohler observed that chimpanzees arrived at this solution quite suddenly.		
<u>Importance</u> :- With the help of insight Learning the organism		

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solve a problem for which it has no previous experience.		
Q7: what is social behavior. write its different types.		
Answer: Social behaviour:		
Definition :- The type of animals which live in society are called social animals and the behaviours of these animals - within the society is called social behaviour — OR — “ social behaviours consists of a set of interactions among individual of the same species.”		
Sociobiology :- The study of social-behaviour is called sociobiology		
Social organization :- Social behaviours are found in those animal which live in community and in group form called social organization. The biological significance of these groups is to cooperate to conduct many task successfully.		
Types of social organization :-		
1: rigid organization :- The individuals which exist in groups throughout their life constitute rigid group called rigid organization.		
Example :- All social insects form rigid social organization like- Ants, bees, Termites and wasps.		
2: Dynamic organization :- The individuals or members that exist in groups for particular time period is called dynamic organization.		
Example :- School of fish, Flock of birds and group of lion in pride are form dynamic social organization.		
Types of social behaviour :- Social behaviour have many		

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different form and disciplines of various interaction type which are following.		
1: Hostility : < دشمنی / رقابت >		
<u>Definition :-</u> The type of social behaviour in which the animal is being ready for fight all the time is called hostile.		
<u>Explanation :-</u> The behaviour as a consequence of competition on limited resources, which is unfriendly and agonistic behaviour is hostile interaction. This type of behaviour — generally occurs in specific season like-reproductive period.		
<u>Example :-</u> A female bird of domestic fowl like hen — perform hostile behaviour.		
2: Helpful intraspecific interaction:		
<u>Definition :-</u> Friendly and cooperative type of interactions as a result of mutual understanding, division of labour and better communication among the group of members are — called as helpful intraspecific interaction.		
<u>Explanation :-</u> cooperation between members of society — sharing division of labour, depends upon stereotyped patterns <innate> of behaviour and possesses effective mean of — communication. However, intraspecific interaction always occurs among the members of same species. ↙ (ETEA-2017)		
<u>Example :-</u> Honey bees possess the intraspecific interaction, among which —		

- 1: The worker bees (Female, diploid, sterile), work and get the nectar for honey making.
- 2: Drone (male, haploid, Fertile), can perform reproduction and produce sperm but some male also playing role of Soldiers who defend the hive or colony of honey bees.
- 3: where as Queen (female, Diploid, Fertile), which is the head of colony and produces egg.
- 4: Queen is single, Few hundreds are male and several — thousands are worker female, each type perform its own duty in the colony, called intraspecific interaction.

3: Aggression: غريزي سلوك

Definition :- The behaviour in which one animal attacks on other animal is called aggression (Fighting) and their — behaviour is called aggressive behaviour.

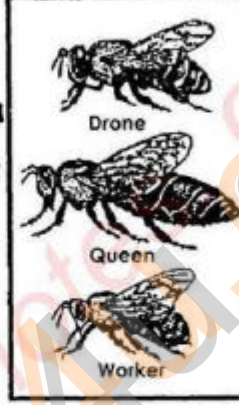
Explanation :- Aggression is a group of behavioural activities including threat posture, rituals and occasionally physical attacks on other organism. aggression usually exists between members of the same species usually between same sexes or between members of different species.

Importance:

- 1: Due to aggression the displacement of other animals from an area occurs, usually from Territory or source of food, water.
- 2: Aggression also defend a mate or offspring.
- 3: It also establish the ranking of social hierarchy (pecking order)

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<u>Agonistic behaviour:</u>		
<u>Definition :-</u> Agonistic behaviour is any social interaction or engagement, which involves threatening behaviour, aggression, fighting, or submission, which occur between two or more individuals of the same species.		
<u>Explanation :-</u> Depending on the importance of the resource as well as its storage, agonistic behaviour can range from all-out-fighting to the death to much safer ritualistic beh;		
<u>Example :</u>		
1: Agonistic behaviour by two domestic cat only recognized by same species.		
2: Barking of Dogs recognized by almost many organisms.		
<u>4: Territorial behaviour :</u>		
<u>Definition :-</u> The type of social behaviour in which a territory is defended by animals (particularly males) is called T-behaviour.		
<u>Territory :-</u> The area held and defended by an organism or a group of organisms against other organisms of same or different species is called Territory.		
<u>Explanation :-</u> Among the animal kingdom this type of behaviour generally develops prior to breeding. In this behaviour usually male found and defend the territory. The exact function of territory may be to facilitate ^{mating} pair of organisms and their offsprings, to be adequately spread in the territory so that they may get proper share of resources such as - food, water and breeding space.		

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<u>Example: - spider monkeys</u> (ETEA-2006)		
1: Spider monkeys form loose groups of 15-25 animals.		
2: They divide upto small groups of 2-8 animals that travel together and feed throughout the day within territory.		
3: But when two different groups of monkeys came together the male member comes forward and expresses territorial behaviour in the form of calling or barking.		
4: usually the groups do not come in contact but they detect each other at certain distances and territorial behaviour is shown to warn each other.		
5: This simply indicates that they respect each other's territories and so no need of physical fight.		
<u>5: Dominance hierarchies:</u>		
<u>Definition :-</u> The type of social behaviour in which the animals are arranged according to the status of animals is called - Dominance hierarchies.		
<u>Explanation :-</u> Dominance hierarchies is a form of animal social structure in which a linear ranking exist. This is also called pecking orders. In pecking order animals are arranged according to the status. where as position in the order is decided by some agonistic form of behaviour other than fighting.		
<u>Significance :</u>		
1: It ensures that resources are shared out.		
2: It also associated with mate (breeding) selection and feeding.		

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3: It avoid the injury to stronger animals. 6: <u>Altruistic behaviour</u>: <Altruism> <u>Definition</u>:- The behaviour in which a single animal lose its life or uses energy for the benefit of other individual or whole colony is called altruistic beh; <u>Explanation</u>:- In this type of behaviour one - Organism puts itself at risk for the goods or benefit of other members of species. <u>For example</u>:- 1: <u>Care of own offsprings</u>:- Female baboon <monkey> protects and cures for its offspring for about 6-years. Similarly most bird species feed and protect their demanding - offsprings until they are capable of feeding for themselves. 2: <u>Care of other offsprings</u>:- Birds and monkeys call out warnings to other in danger conditions to inform other member of the population. Monkeys not always carrings and care for own offsprings in danger but for other offspring also. 3: <u>Social insects</u>:- Altruistic behaviour is also found in social - insects such as - Honey bees , wasp and ants. <u>Organization of honey bee Society</u>:- In case of honey bee colony- i: <u>Worker</u>:- worker <female> collect nectar for the whole colony to feed their brother , sisters and their offsprings and protect it. ii: <u>Drone</u>:- Drones <male> produce sperm and protect the whole - colony from any attacking organisms or agents. iii: <u>Queen</u>:- Queen <Female>, being the head of colony , lays egg and leads the whole colony of honey bee.		 The diagram illustrates the three castes of a honey bee colony. At the top is a 'Drone', a male bee with large wings and no stinger. In the middle is the 'Queen', a larger female bee with a long, segmented abdomen. At the bottom is a 'Worker', a smaller female bee with a stinger. Each bee is labeled with its respective name.

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Exercise

Exercise MCQs

A . Multiple Choice Questions (MCQs).

1. Which of the following rhythm control our sleep-wake cycle?
 a) Infradian ☒ b) Circadian c) Circannual d) Ultradian
2. The length of a circadian cycle is:
 a) 28 hours b) 24 hours ☒ c) 24 days d) 1 year
3. Which of the following is true of circadian rhythms?
 a). They are artificial inventions of timekeepers.
☒ b). They are internally driven and externally regulated cycles.
 c). They are sequences of events that occur once a month.
 d). They occur on the same schedule regardless of the changes from day to night.
4. A Chimpanzee using a stick to collect ants to have as a snack is an example of
 a) Inherited Trait b) Learned Behaviour
 c) Instinctive Behaviour ☒ d) Autonomic response
5. In a vertebrate a reflex action is induced by :
 a) Sensory nerve ☒ b) Motor nerve
 c) Autonomic response d) Sympathetic nerve
6. Who at first demonstrated the conditioned reflex?
 a) Karl von Frisch b) Robert Brown c) William harve ☒ d) Pavlov
7. Which of the following is change of behaviour by life experiences?
 a) Instinct b) maturation ☒ c) Learning d) Imprinting
8. The decrease in response to repeated or continuous stimulation is called:
 a) Instinct b) maturation ☒ c) habituation d) Imprinting
9. Identify the type of behaviour which uses cognitive or mental processes to associate experiences for solving problems?
 a) Instinct b) maturation c) habituation ☒ d) insight
10. Type of behaviour in which one animal is aggressive or attacks another animal the other responds by returning the aggression or submitting is:
☒ a) Agnostis b) Territory c) Hierarchy d) Altruism
11. Which one is non-directed orientation?
 a) Taxis ☒ b) Kinesis c) Tropism d) Imprinting
12. Trial and error learning has no role in
 a) Operant learning b) Classical conditioning
☒ c) Insight d) Imprinting

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Short Questions		
Q1:	— How innate behaviour ensures the survival of individual in a population.	
	<u>Answer:</u> Innate Behaviour: <Survival values>	
	1: Innate behaviour dictates the behaviours necessary for survival, especially in species that don't get much — guidance from their parents.	
	2: These behaviours are programmed into an animal at a genetic level, therefore they are heritable into offspring.	
	3: These behaviour can perform in isolation and done the same way every time.	
	4: These behaviour is fully developed from the animal's birth and cannot modified by experience.	
	5: The above characters or nature show that innate — behaviour ensures the survival of a species.	
Q2:	— what is territorial behavior.	
	<u>Answer:</u> See Question No-7. <write part-4-Territorial beh;>	
Q3:	— How insight learning is different from other learning.	
	<u>Answer:</u> — See Question No-6 <write only— Definition, complicated behaviour and explanation of insight behaviour>.	
Q4:	— write a brief note on altruism in honey bees.	
	<u>Answer</u> :- See Question No-7. <write only— Definition of alturistic behaviour with example of social organization of — Honey bee society>	

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Q5: — Give the characteristics of innate behaviour. <u>Answer:</u> — See Question No-3.		
Long Questions		
Q1: — what do you mean by biological rhythm. Explain.....with example. <u>Answer:</u> — See Question No-2.		
Q2: — Differentiate b/w learning and innate behaviour. write five major characteristics of these types of behaviour. <u>Answer:</u> — write Question No-3 and Question No-5.		
Q3: — Explain imprinting as per work of Lorenz. <u>Answer:</u> — See Question No-6 (write only — imprinting topic)		
Q4: — Describe Kohler's work on chimpanzees with reference to insight learning. <u>Answer:</u> — See Question No-6. (write only — insight learning).		
Q5: — what do you mean by agonistic behaviour in animals. How this behaviour maintains of social order in terms of — territories and dominance hierarchies. <u>Answer:</u> — See Question No-7. (Topic = 3: Aggression only)		
Q6: — Define altruism. Explain this behaviour by referring the organization of a honey bee society. <u>Answer:</u> — See Question No-7 (Topic = 6: altruistic behaviour)		
Q7: — State classical conditioning with reference to the work of Pavlov. <u>Answer:</u> — See Question No-6. (write only — 3: classical-conditioning topic).		
— End —		

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Previous Entry Test MCQ's of Biology Chapter No -19: (Behavior)														
2006 ETEA														
1. The social organization of the living Monkeys was studied by: (a) Allen (b) Thorpe (c) Schjeldeup-ebbc (d) Carpenter 2. Corpuscular animals are active during: (a) Night (b) Day (c) Twilight (d) Spring 3. Corpuscular animals are active during: (a) Night (b) Day (c) Twilight (d) Spring														
2011 ETEA														
4. The changes in the biochemical composition and physiology occurring at regular intervals in 24 hours are termed as: a) Giovannal rhythm b) Lunar rhythm c) Circadian rhythm d) Tidal rhythm 5. in spiders, the organs that contain the silk glands are called: (a) Spinnerets (b) Carapaces (c) Medriporite (d) Tube feet 6. Which of the following is NOT an innate behavior? (a) A baby mammal sucking milk (b) A dog looking for its food dish (c) A worm moving away from bright light (d) A spider spinning a web														
2013 ETEA														
7. Who used puzzle boxes in experiment on animal learning:? (a) Pavlov (b) E.L Thorndike (c) Konrad Lorenz (d) Kohler														
2014 ETEA														
8. A complex form of learning that require the manipulation of mental concepts to arrive at adaptive behavior is---- a) Imprinting b) Insight learning c) Latent learning d) Trial and error learning														
2017 ETEA														
9. In which of the following the female workers are sterile? (a) Ants (b) Honeybee (c) Baboon (d) Parrots														
2019 ETEA														
10. The simplest form of learning is: (a) Imprinting (b) Insight learning (c) Latent learning (d) Habituation														
Key: - <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>1.d</td> <td>2.c</td> <td>3.c</td> <td>4.d</td> <td>5.a</td> <td>6.b</td> </tr> <tr> <td>7.b</td> <td>8.b</td> <td>9.b</td> <td>10.d</td> <td></td> <td></td> </tr> </table>			1.d	2.c	3.c	4.d	5.a	6.b	7.b	8.b	9.b	10.d		
1.d	2.c	3.c	4.d	5.a	6.b									
7.b	8.b	9.b	10.d											

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