Lecture 1

(Q1) Choose the right answer:

1- Development; population and fertility of Insects are affected by:

A- Host plant B- Habitat temperature C- Humidity D- presence of other sex?

2- The accumulation of development speed according to development rate summing theory depends on:

A- Growth B- enzyme process C- Growth and enzyme process D- temperature?

4- Low temperature or high critical temperature caused a sharp increase in death rates, which vary according to:

A- Insect species B- Insect instar C-Insect sex D- Insect species and insect instar?

5- The thermal rang breadth in the direction of high temperature in changing systems is:

A- Valid for some insects of perform successful development B- Non valid for some insects of perform successful development C- Is resulting in death of most of the insects D- Non valid for some insects of perform successful development & is resulting in death of most of the insects?

7-Thermal variation in the lower range of the turning point of the development curve causes:

A- Speeding of the development rate B- Stopping the development rate C- Slow the rate of the development D- Prevent the rate of the development?

8- The law of thermal constant, which means striking the:

A- Period of development in the heat effect B- Period of evolution in the weight gain C- period of evolution in constant heat D- Period of evolution in fluctuating heat?

10- The length of period stage during the metamorphosis phases increases as:

A-The temperature increases than the optimum temperature B- The temperature decrease than the optimum temperature C- the temperature equal the optimum temperature D- The temperature decrease than the optimum temperature and the temperature equal the optimum temperature?

11- Thermal summing theory is the basis of predication of:

A- Immigration date B- Meeting date C- Metamorphosis date D- Outbreak date?

13- Thermal activation in Janisch 1925 equation at temperatures above the optimal temperature becomes:

A- Equal effect B- non effect C- positive effect D- negative effect?

14- Under constant temperature conditions, the period of the adult phase and the lifespan of female are shorter than the male at:

A- Low temperature B- High temperature C- Low temperature and short photoperiod D- High temperature and long photoperiod?

(Q2) Mark true or false on the following statements:

1- Development of the insect and its relationship with environmental temperature, it means of complex chemical reactions within physiological insect system? ( )

2- It is well known that; the female insects are faster in their development than male within one species in constant temperature system? ( )

4-The thermal rang insect life which capable of narrow range where the insect is able to maintain the continuity of its evolution? ( )

5- Td= time / 2 [a[T-T opt.] - a [T opt. - T] ? ( )

7-Death rates of insect depend on the duration of exposure to high-critical temperatures in fluctuating temperature system? ( )

8- The law of thermal constant, which means striking the period of metamorphosis in the heat effect? ( )

10- Death rates of insect at high-critical temperatures exposure may be due to a disturbance in metabolic process? ( )

11- There are insects can develop independent of thermal effects in a wide thermal range such as African field crickets insect? ( )

(Q3):

1- **Discus the role of temperature effects on fecundity of insect?**
2- **Discus the role of fluctuating temperature effects on the duration of development of insect?**

Lecture 2

(Q1) Choose the right answer:

1- Development rate summing theory depended on:

A-The relationship between the light and temperature **B-** The relationship between the adult longevity and temperature **C-** The relationship between the size and temperature **D-** The relationship between the fecundity and temperature?

2- The daily organization of metabolic reactions or hormonal control in development:

A- Affected by fluctuating temperature **B-** Affected by constant temperature **C-** May be Affected by fluctuating temperature **D-** Affected by constant temperature

4- In the fluctuating temperature system; At rest, insect metabolism at low temperature is required

A- Low respiration B- High temperature C- Less energy D- Low respiration & less energy?

5- The correlation between the thermal period and photoperiod is a factor in:

A- Body weight B- Diapauses C- Development time D-Body weight; diapauses and development time?

7- In the fluctuating temperature system; insect covers its food altogether during:

A- Low temperature activity B- High temperature activity C-High temperature D- Low temperature?

8- Fluctuating temperature may play cycle of rotation:

A- Under continuous lighting conditions opened B- Under continuous darkness C- Under conditions of the sun light D- Under continuous lighting conditions opened and under continuous darkness?

10- Thermal compensation occurs in metabolic rate leads to rise metabolic rate reflects on increasing:

A- Growth B- Lack of development period C-Fertility D- Growth; lack of development period and fertility?

11- Moult hormone responsible for:

A- Moulting and metamorphosis B- Catalyst for growth and the formation C- Moulting and development D- Moulting and metamorphosis with catalyst for growth and the formation?

13- The trend of the preferred term for development and fertility in low temperature trend in fluctuating temperatures system may be due to :

A- An active disincentive to development B- A disincentive to development has been destroyed C- A disincentive to development has been damaged D- A disincentive to development has been destroyed and a disincentive to development has been damaged?

14- The effect of critical environmental conditions on insects' growth includes:

A- Growth faster B- Growth slows C- Diapause D – Growth slows and diapause?

(Q2) Mark true or false on the following statements:

1-Development rate summing theory is useful in the expectation for a generation of insect adult departure? ( )

2-The exposure of the insect to the fluctuating temperatures increases the concentration of juvenile hormone that activates the ovary and increases the production of eggs? ( )

4-Development rate summing theory is not able to explain how development rate causes or how to control its rhythm adult exit occurs at a specific time from the day in an insect type? ( )

5- Modifications in hormone concentration in the fluctuating temperatures include the decreasing concentration of juvenile hormone in insect? ( )

7- Under fluctuating temperatures conditions, the cost of respiratory metabolism more under conditions of constant temperature? ( )

8- The correlation between the thermal period and photoperiod is only an effective factor in the development time and body weight only? ( )

10- Dwarves insects form when accelerating growth and giants insects form with slowly growing? ( )

11-Under fluctuating temperatures conditions, saving energy reflected on the growth and egg pod production of insect? ( )

(Q3):

1-**Discuss the role of temperature action on development and reproduction?**

Lecture 3

(Q1) Choose the right answer:

1- Most species of insects are very selective feeders and the basis of choosing the host plants that they are suitable for:

A- Feeding B- Mating C-Deposit their eggs D- Protection?

2- In cases in which alternative host has been assessed during the selection, the insect follows the behavior:

A- Contact the hosts one time B- Contact the hosts two time C-Do not contact the hosts D- Contact the hosts more frequently?

4- The insect in choosing its host plant depends on:

A- Plant species B- Leaves size C-Specific plant organs D- Plant species and specific plant organs?

5- When insects continue feeding or oviposition on its food host, this is called a term:

A- Search B- Acceptance C- Preference D- Selection?

7- Hatching newly larvae a small body size and consequently possess limited energy reserves, they are capable of leaving the plant on which they hatched if they appear it:

A- Unsuitable B- Invisible C- Un-widespread D- Un-illuminating?

8- Monophagous insect finds its host as follows the sequence of host-plant selection behavior:

A- Search, selection, preference and acceptance B- Search, selection, and acceptance C- Search, selection and preference D- Search and acceptance?

10- When an insect is remote from a potential food plant, it searches for food plant to arrive it and:

A- Contact it and feeding B- Contact it and lay eggs C- Contact it and feeding and Contact it and lay eggs D- Contact it and examine its characteristics?

11- Recognition term is often used in connection with:

A- Search B- Selection C-Preference D-acceptance?

13- In the strict sense of the word, to select' means to choose from among alternative. In order to do this, it is necessary that:

A-The insect has the sensory perception of alternative food plant B-The insect has the visually perception of alternative food plant C-The insect has the motor perception of alternative food plant D-The insect has the mobile perception of alternative food plant?

14- The term of preference is observed under field conditions with:

A- Polyphagous insects B- Monophagous insects C-Oligophagous insect D- Phytophagous insects?

(Q2) Mark true or false on the following statements:

1-The selection behavior of most insects for their plant host may not change with the developmental phase of the insect? ( )

2- Repellent is a chemical that inhibits feeding or oviposition when present in a place where insects would, in its absence, feed or oviposit? ( )

4-Different stages of insect often differ in their host-plant preference or their ability to use a plant species as a host? ( ).

5-Attractant is a chemical that may slow the linear progression of an insect by reducing actual speed of locomotion or increasing turning? ( )

7- The term 'searching means' to move carefully in a place in an effort to find something? ( )

8- Deterrent is a chemical that causes insects to make oriented movements away from its source? ( )

10- The term selection means a weighting of alternatives among different food hosts? ( )

11- Arrestant is a chemical that causes insects to make oriented movements towards its source? ( )

(Q3):

1- **Write with the drawing about the searching patterns used where resources are aggregated?**

2- Write about the recognition term in how the insect finds a host plant?

Lecture 4

(Q1) Choose the right answer:

1- Important types of stimulus that could be used as directionality cues by insects towards their food are:

A- Optical and odorous characteristics of plants B-Optical; visual and odorous characteristics of plants C- Optical; odorous and hearing characteristics of plants

B- B & C?

2- Optical plant characteristics emitted to the insect for stimulation, are relatively constant with respect to their distribution and they depended on:

A- Temperature and light intensity B- Wind speed C- Temperature and wind speed D- Light intensity?

3- Volatile compounds emanating in air from plants to insects move:

A- Balanced B-Faster C-Slowly D- Randomly?

4- Odors emanating from plants for stimulant the insects have a spatially highly variable distribution and concentration, which depends on:

A- Wind speed B- Temperature C- Wind speed and temperature D- Wind speed; temperature and light intensity?

5- The quality and quantity of emitted plant volatiles for insect stimulating may affected by:

A- The plant's physiological state B- Injury effects C-Wounding effects D -A & B**?**

6- The concentrations of smell emitted by the host plant to attract insects for feeding or oviposition are rise sharply when the plant is:

A-Away B-Normal C- Approached D- Active?

7- The odor plume and an odor signal emitted from the host plant in the air attract the insect for feeding or oviposition and the insect moves:

A- Upwind in a straight line to odor source B- Upwind in a looping to odor source C-Upwind in a circling to odor source D- With the win in a straight line to odor source?

8- Active space of insect behavioural response is a space which the intensity of a stimulus or cue is:

A- Above the threshold of behavioural response B- Below the threshold of behavioural response C- At the threshold of behavioural response D- Equal the threshold of behavioural response?

Mark true or false on the following statements:

1- Optical and odorous characteristics of plants are uses particularly when diurnal and nocturnal species are compared? (√)

2- The concentrations of smell emitted by the host plant to attract insects for feeding or oviposition are rise sharply when the plant is active? (X)

3- Spectral reflectance pattern of optical cues from the host plant is not altered by air movements? (√)

4- Optical plant characteristics emitted to the insect for stimulation, are relatively constant with respect to their distribution and they depended on temperature and wind speed? (X)

5- Volatile compounds emanating from plants to insects move slowly? (√)

6- Spectral reflectance pattern of optical cues from the host plant is not relatively constant at varying distances from the plant? (X)

7- The odor plume and an odour signal emitted from the host plant in the air attract the insect for feeding or oviposition and the insect moves upwind in a looping to odor source? (X)

(Q3):

1- **Discuss the orientation to odours under laboratory circumstances, of walking insect?**

2- **Discuss the role of active space in the orientation to Host-Plant by an insect?**

End