BIOLOGY

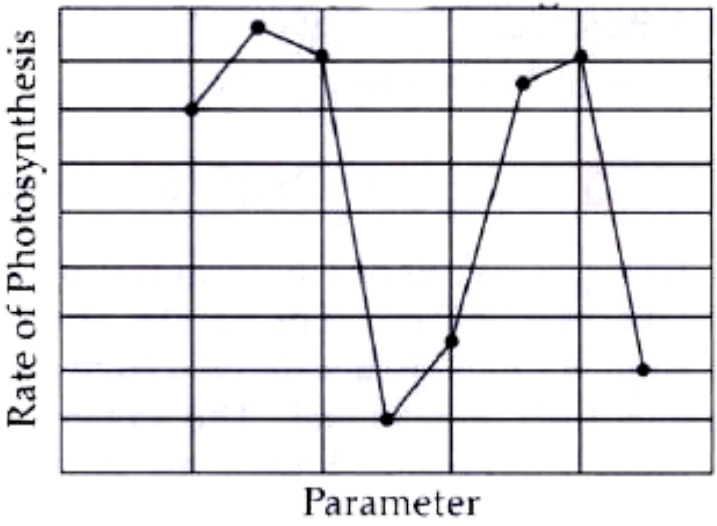
BOOKS - OSWAL PUBLICATION

OLYMPIAD 2019 - 20

Biology Questions Life Processes

1. Rate of photosynthesis in hydrophytes depends on various parameters. The adjacent graph shows the effect of one parameter

(while keeping all the other constant) on the rate of photosynthesis. Rate of photosynthesis is plotted on Y axis. Identify the parameter which is plotted along X axis :



A. light intensity

B. wavelength

C. temperature

D. CO_2 concentration

Answer: B

Watch Video Solution

2. In the following industry, when the dough is prepared, various ingredients are mixed together with the flour. At one instance, the dough was fermented, but failed to rise sufficiently during the baking process. Choose the correct cause(s) from following

possibilities.

i. The salt was mixed before the fermentation process was completed.

ii. The sugar was added in excess.

iii. Yeast granules were not activated prior to mixing with the flour.

A. i, ii

B. iii only

C. i, ii, iii

D. i, ii

Answer: C

Watch Video Solution

3. Four different human body fluid samples were subjected to quantification of hydrogen ion concentration. $\frac{mEq}{L}$ is the unit of measurement for hydrogen ion concentration. The results of the experiment were as follows:

Sample A: 1.6×10^{2} units Sample B : 4.5×10^{-5} units

Sample C:1×10^{-3} units Sample D : 3×10^{-2} units

Identity the samples in sequence from A to D.

A. Gastric HCI, Venous blood, Intracellular Fluid, Urine

B. Venous blood, Intracellular Fluid, Gastric HCI, Urine

C. Urine, Gastric HCI, Venous blood, Intracellular Fluid

D. Intracellular Fluid, Urine Gastric HCI, Venous blood

Answer: A

Watch Video Solution

Biology Questions Control And Coordination

1. Rahul sprayed a chemical 'X' on a plant with rosette habit. After few days, he found the internodal istances to have increased suddenly. The chemical 'X' might be:

A. Ethylene

B. Abscisic acid

C. Auxin

D. Gibberellic acid

Answer: D

 Watch Video Solution

2. Any damage or injury to a particular area causes nociceptors to release some chemicals, which carry the signal to the higher centres in the nervous system for the processing and a subsequent action. However, there is a difference in the way in which the stimulus is

received which is related to the acuity of the detection. Fingertips are more sensitive as compared to the forearm. Following reasons for the observed phenomenon were suggested.

i. The receptive fields in the fingertip are smaller.

ii. The number of nociceptors per receptive field in the forearm is lesser.

iii. The amount of prostaglandins released by the nociceptors per receptive field is more in fingertips.

The most probable reason(s) for this may be:

A. i

B. i,iii

C. ii,iii

D. i,ii,iii

Answer: C

Watch Video Solution

1. An organism has 27 pairs of homologous chromosomes. In each daughter cell after completion of mitosis and in each gamete after completion of meiosis II, _____ and _____ chromosomes would be present respectively.

A. 27 and 27

B. 54 and 27

C. 108 and 54

D. 54 and 108

Answer: B

Watch Video Solution

2. On a study tour, plants with leathery leaves with thick cuticle, vivipary, salt glands, apogeotropic roots, and stomata limited to abaxial surface were observed The plants might be:

A. Bromeliads

B. Cycads

C. Mangroves

D. None of the above

Answer: C

Watch Video Solution

Biology Questions Heredity And Evolution

1. In case of mice coat colour, two genes are responsible for colour of the hair, Gene A is responsible for distribution of pigments on shaft of hair. Wild type allele of 'A' produces a

yellow band on dark hair shaft (agouti), whereas recessive allele produces no yellow band. There is another allele of A, known as A, which is embryonic lethal in homozygous condition only. In an experiment, two yellow mice were crossed to obtain a progeny of 6 pups. What would be the most probable number of agouti mice among them?

A. 0

B. 2

C. 4

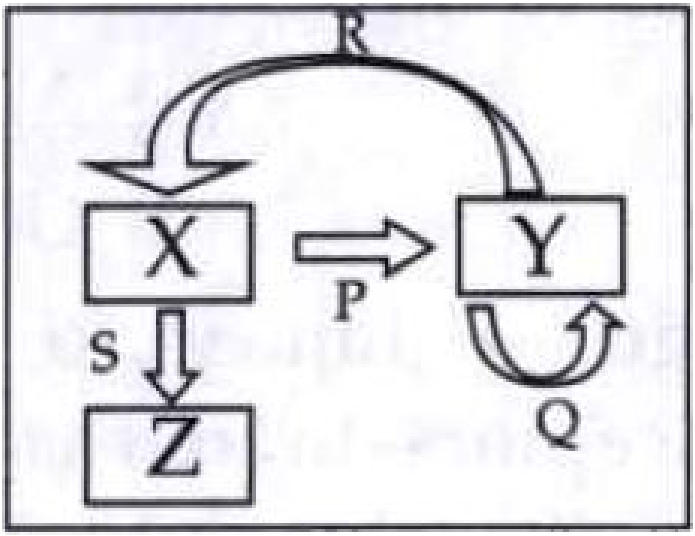
D. None of the above

Answer: B

Watch Video Solution

2. A process is represented in the adjacent figure. The arrows indicate the flow of a biochemical reaction. The arrowhead points to the product, while the base of the arrow indicates the template biomolecule. What do

P, Q, R, and S represent ?



A. P: Replication, Q : Translation, R: Transcription, S: Reverse Transcription

B. P: Transcription, Q : Replication, R : Reverse Transcription, S: Translation

C. P : Reverse Transcription, Q: Replication, R: Translation, S: Transcription

D. P: Reverse Transcription, Q: Replication, R: Transcription, S: Translation

Answer: D

Watch Video Solution

3. Fecundity in animal world is the maximum possible ability of an individual to produce offsprings during its entire lifetime. Following

factors were checked for their effect on fecundity of different animal models,

i. Availabilty of food during breeding season

ii. Mode of fertilization

iii. Population density Which of these factor(s) can regulate fecundity?

A. i,ii

B. ii,iii

C. i, ii, iii

D. None of the above

Answer: C

Watch Video Solution

4. In case of peppered moths, pale and dark moths are observed. Pale variety is known to be the wild type variety. During industrial revolution, industrial melanism led to prevalence of dark variety around the cities and pale variety continued to be in majority in areas away from the industries. After enforcement of regulation for controlling pollution, reappearance of pale moths in majority was observed around cities again.

Driving force(s) for these adaptive changes is/are:

i. Increased pollution around industries

ii. A stable transposition of a gene in moths

iii. Limitations of the vision of dark months on darken moths in presence of lichens

iv. Ability of lichens to grow on barks in less polluted areas only.

A. i,iv

B. i, iii, iv

C. i,ii

D. i,ii,iii and iv

Answer: B

Watch Video Solution

5. The whooping cranes were on the verge of extinction with only 21 individuals in wild in 1941. After conservation measures, the cranes are now included in the endangered category by IUCN. The highlight of the conservation effort is the reintroduction of the whooping

cranes in wild. This was possible due to raising of the young cranes in absence of their parents by biologists dressed in crane costumes. Aircraft Guided bird migration technique was used for teaching the captive-bred cranes to follow the scientists to learn the migratory route. What type of animal behaviour might be responsible for these captive bred cranes to follow the crane costume dressed scientists?

A. Cognitive learning

B. Habituation

C. Operant conditioning

D. Genetic Imprinting

Answer: A

 Watch Video Solution

Biology Questions Fundaments Unit Of Life

1. A stain was developed by a group of scientists to stain a particular cell organelle. The stain was tested on various tissues

derived from an autopsy sample from a mammal. The organelles were counted. The results showed maximum number of the organelles in cells of brain, lesser in cells of heart, least in mature sperms and absent in erythrocytes. Identify the organelles from following options.

A. Nissl bodies

B. Mitochondria

C. Golgi bodies

D. Endoplasmic reticulum

Answer: D

Watch Video Solution

2. Pinus sylvestris grows at low temperatures in Russia. The plant survives under such freezing conditions due to the presence of:

A. Saturated lipids in plasma membrane

B. Glycoproteins in plasma membrane

C. Glycolipids in plasma membrane

D. Polyunsaturated lipids in plasma membrane

Answer: D

 Watch Video Solution

3. A 4 cm long bacterial cell was magnified and drawn to a dimension of 6 cm. How many times has It been magnified ?

A. 1.5×10^3

B. 15×10^4

C. 1.5×10^4

D. 1.5

Answer: C

Watch Video Solution

Biology Questions Diversity In Organisms

1. Gymnosperms are called naked seed plants because they lack

A. Male gamete

B. Ovule

C. Ovary

D. Seeds

Answer: C

Watch Video Solution

2. A group of students was studying development of an organism under controlled laboratory conditions. Following observations

were made by them.

i. The laravel had a rod-like supporting structure that separated the nervous system and the gut.

ii. A prominent central cavity was present in the transverse section of the part of the nervous system of the larvae, while the adults had cerebral ganglia as the main component of the nervous system.

iii. The eye were prominently seen in larvae.

iv. The tails were absent in the adults, which the larvae had.

v. A lot of phagocytic activity was observed

before conversion of larvae into adults.

vi. The adults had a cuticular exoskeleton.

The organism understudy must be belonging to,

A. Amphibia

B. Pisces

C. Protochordata

D. Arthropoda

Answer: C

 Watch Video Solution

3. Given below are four statements.

i. Prokaryotic cells are unicelluar while eukaryotes are multicellular.

ii. Histones are present in eukaryotes and absent in prokaryotes.

iii. The nucleoid contains the genetic material in prokaryotes and eukaryotes.

iv. Prokaryotic flagellum is composed of flagellin while eukaryotic flagellum is composed of tubulin.

Identify which amongst these are false.

A. I and II

B. III and IV

C. II and III

D. I and III

Answer: D

 Watch Video Solution

4. The students of a college were working on regeneration using Planaria (Platyhelminthes) and Asterias (Echinodermata). Planaria was cut

in three pieces, namely, a piece with head, with tail and the middle piece. Asterias (bearing five arms) was cut in such a way that after separation six pieces were obtained, namely, and arm with a portion of the central disc, four pieces cut from tips of each of the remaining arms and the remaining body. The animals were allowed to regenerate completely. How many planaria and Asterias respectively will be obtained after the completion of regeneration in both ?

A. 1 , 1

B. 3 , 2

C. 3 , 6

D. 1 , 2

Answer: B

Watch Video Solution

Biology Questions Why Do We Fall Iii

1. In an experimental setup, certain pathogen caused a disease in primates with nasal

congestion, sore throat and fever being the common symptoms. The scientists injected an extract from blue-green mold as the first line of action. However, the symptoms did not subside. The possible causative agents of the disease were listed out as follows:

i. a virus

ii. a fungus

iii. a conjugation deficient bacterium

iv. a tapeworm

Choose the correct option from the following that indicate the pathogen.

A. i, ii

B. i, iii

C. ii, iv

D. iii only

Answer: B

 Watch Video Solution