 

1. Which of the following statements regarding hologoic nutrition is false?
   1. Herbivores show hologoic nutrition
   2. Ingestion, digestion, absorption & assimilation are some of the steps of hologoic nutrition
   3. Hologoic nutrition does not involve engulfment of whole or part of a plant or animal.
   4. Cannibals also come under the category of hologoic nutrition.
   5. None of these
2. Photosynthesis is the process of synthesizing food with the help of cartoon dioxide and water in the presence of light. During this process oxygen is liberated by oxidation of
   1. H2O
   2. CO2
   3. H2O2
   4. C6H12O6
   5. None of these
3. Which of the following statements are true?
4. In males, the Adam’s apple is the protruding cartilage of the larynx.
5. While swallowing food, glottis gets covered by a small bony flap of skin called epiglottis.
6. Stomata and lenticels function is gas exchange between the atmosphere and internal tissues.
7. Reptiles have two chambers in their heart while on the other hand, fish have only one chamber on their heart
   1. (i) & (ii)
   2. (ii) & (iii)
   3. (i) & (iii)
   4. (iii) & (iv)
   5. None of these
8. The heart is a hollow, muscular, cone-shaped organ, raying between the lungs in the thoracic cavity. In the given diagram of heart, certain parts have been labeled as a, b, c, d & e. Select the correct option
   1. The part labeled c closes shortly after the start of ventricular systole while the d closes shortly after the diastole starts.
   2. The parts labeled c & d have three & two flabs respectively.
   3. The part labeled b caries impure blood.
   4. The part labeled a carries pure bold while e carries impure blood. (Diag-heart) (2009)

III

CO2 + H2O + Energy

Glucose

GlucosEEEEe

Ethanol + CO2 + Energy

Lactic acid + Energy

I

II

1. .

The above flow chart shows the tree steps of glucose breakdown in different conditions. Which of the given steps is responsible for muscle cramps?

* 1. Step I
  2. Step II
  3. Step III
  4. Both (a) & (b)

1. A student carried out an experiment to investigate the conditions necessary for photosynthesis. He fixed leaf ‘A’ of a potted plant into a flask containing potassium hydroxide solution. He fixed another leaf ‘B’ of the plant into a flask containing water and wrapped the flask with a piece of black cloth. The plant was left in sunlight. After 6 hours he detached and tested both leaves for starch. Which of the following results most likely the student had found?
   1. Starch was found in both leaves A and B
   2. Starch was found in leaf A and B
   3. Starch was found in leaf B, but not in leaf A
   4. Starch was not found in any leaves.

(Diag 2012 i) (2012)

1. The given figure shows a part of circulatory system drawn by a student. Identify the incorrect concept(s) of the student as shown by the figure.
   1. Lymphatic versel is shown as directly joined to the blood capillaries and lymph is not shown in enclosed tubes
   2. Blood capillaries are shown united with arteriole
   3. Blood flow is shown from artery

Capillary arteriole; and waste products are brought to the cells from the blood.

* 1. All of these (2013)

Diag 2014 Paper

Diag 2013 (vi)

1. Albumin is the most abundant protein in blood plasma, accounting for approximately 60% of all plasma protein. A person was found to have reduced level of plasma albumin due to kidney damage. Which of the labeled parts would you expert to be the primary site of damage fro this patient?
   1. U, T
   2. P Only
   3. R Only
   4. P, Q, S (2014) Set A
2. Cells without nucleoli die because they do not possess \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. Centrioles & so are unable to undergo cell division
   2. Lysosomes and so are unable to destroy worn out organelles.
   3. Mitochondria and so are unable to obtain energy
   4. Ribosomes and so are unable to manufacture proteins. (2014) Set B
3. Given are different parts of respiratory tract

P – Nasal cavity

Q – Alveolar duct

R – Larynx

S – Respiratory bronchioles

T – Epiglottis

U – Terminal bronchioles

V – Lobular Bronchioles

W – Trachea

X – Bronchus

Which parts a molecule of CO2 in the alveolus of the inferior lobe of lung takes on its journey to the outside?

* 1. Q U S V X W R T P
  2. Q S U V X W T R P
  3. Q S U V X W R T P
  4. Q S U X V W R T P

( 2014 Set A)

**CHAPTER-2 CONTROL & CO-ORDINATION**

1. Breathing occurs involuntarily but its rate is controlled by which of the following respiratory centers of brain?
   1. Medulla oblongata
   2. Cerebrum
   3. Pons varolii
   4. Both (a) & (c)
   5. None of these
2. (i) Labelled part a is involved in control of blood pressure, salivation and vomiting.

(ii) Labelled part b is responsible for precision of voluntary actions and maintaining the posture and balance of the body.

(iii) The part labeled c is responsible for change in size of the pupil and activity like waling in a straight line

(iv) The secretions of part labeled d are responsible for functioning of hypothalamus

1. The part labeled e receives and integrates signals from spinal cord (2009)

Diag 2009 Paper

1. The given figure shows the pathway taken by a nerve impulse in a reflex action. Which part serves as a link between other nervous?
   1. P
   2. Q
   3. R
   4. S
2. Match column 1 with column II and select the correct option from the codes given below.

|  |  |
| --- | --- |
| Column I | Column II |
| 1. Auxin 2. Cytokines 3. Gibberellins 4. Abscisic acid 5. Ethylene | 1. Fruit ripening 2. Phototropism 3. Stimulation of cell division 4. Suppression of cell division 5. Stomata opening & closing 6. Growth of lateral buds 7. Stem elongation in   “rosette” plants |

1. a – (iii), (vi), b – (vii), c – (ii), d – (i), (iv), e – (v)
2. a – (ii), b – (v), c – (iii), (vi), d – (vii), e – (i), (iv)
3. a– (iii), (vi), b – (ii), c – (vii), d – (v), e – (i) (iv)
4. a – (ii), b – (iii), (vi), c – (vii), d – (v), e – (i), (iv)
5. Correct the following statements by replacing the terms underlined (wherever necessary) and select the correct option.
6. The part of human brain which regulates heart beat is called cerebrum
7. Chemotropism is directional movement
8. The centre for sexual behavior is situated in medulla oblongata
9. The plant hormone named after the fungus causing bakane disease is IAA
10. Centre for hunger and thirst is located in diencephalon.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | (i) | (ii) | (iii) | (iv) | (v) |
| (a) | Hypothalamus | Tropic | Cerebrum | Auxin | Diencephalon |
| (b) | Medulla Oblongata | Directional | Hypothalamus | Gibberellin | Diencephalon |
| (c) | Hypothalamus | Tropic | Cerebrum | Auxin | Metencephalon |
| (d) | Medulla Oblongata | Directional | Hypothalamus | Gibberellin | Metencephalon |

(2012)

1. Match column 1 with column II and select the correct option from the codes given below.

|  |  |
| --- | --- |
| Column I | Column II |
| 1. Luteinizing hormone (LH) 2. Thyroxin 3. Oxytocin 4. Parathyroid hormone (PTH) | 1. Regulates calcium and phosphate levels in blood. 2. Stimulates the rate of cellular oxidation and metabolism. 3. Stimulates the secretion of male sex hormones. 4. Stimulates contraction of smooth muscles at the time of child birth. |

1. a – (iii), b – (ii), c – (i), d – (iv)
2. a – (iii), b – (ii), c – (iv), d – (i)
3. a – (iv), b – (ii), c – (i), d – (iii)
4. a – (i), b – (iii), c – (ii), d – (iv) (2013)
5. What would happen to a person if cerebellum of his brain is damaged?
   1. He will lose his memory power.
   2. He will not be able to swallow food properly.
   3. He will be unable to co-ordinate and stand properly.
   4. He will lose his power of vision and hearing. (NTSE-2012,13)
6. Read the given statements and select the correct option.
7. In light, hormone arxin helps the cells to grow longer.
8. Plant hormone gibberellin helps in growth of a stem.
9. Cytokinin inhibits cell division.
10. Abscisic acid promotes growth in plants.
    1. Statements (i) and (iii) are correct.
    2. Statements (ii) and (iv) are correct.
    3. Statements (i) and (ii) are correct.
    4. Statements (i) and (iv) are correct.
11. Cut leaves remain green for longer time if dipped in
    1. Auxin
    2. Cytokinins
    3. Ethylene
    4. Gibberellins (NTSE-Delhi)
12. Which one is an anti-transpirent hormone?
    1. Auxin
    2. Cytokinins
    3. Abscisic acid
    4. Gibberellins

**CHAPTER-3 HOW DO ORGANISMS REPRODUCE**

1. Given below are the characteristics of different types of vegetative reproduction in higher plants . State which among them is/are false.
   1. Stem cuttings are commonly used for propagation in jasmine
   2. Micro propagation is not a method of vegetative propagation
   3. Vegetative reproduction can also be called parthenogenesis
   4. Scion is a term related to grafting
   5. (i), (iii) & (iv)
   6. (iii) & (iv)
   7. (ii) & (iv)
   8. (ii), (iii) & (iv)
   9. None of these (2008)
2. Refer the given figure and select the correct option.
   1. The parts labeled a & b give rise to seed & fruit respectively.
   2. The parts labeled c and b give rise to seed and fruit respectively.
   3. The part labeled d results in endosperm
   4. Both (a) and (c) (2009)

Diag 2009 Paper

1. The figure shows the arrangement of blood vessels in the uterus wall and placenta of a pregnant women.

Which of the following will increase in concentration in the blood as it as it flows from 1 and 2?

* + 1. Amino acids
    2. Carbon Dioxide
    3. Glucose
    4. Oxygen (2009)

Diag 2009 Paper

1. Each ovule consists of a large oval shaped cell called the embryo sac and the mature embryo sac contains \_\_\_\_\_\_\_\_\_\_\_\_\_ nuclei.
   1. Two
   2. Three
   3. Five
   4. Eight (2010)
2. Sperms travel during an ejaculation form the (i) where they are stored to the (ii) feron where they are transported to the ejaculatory duct and then to the (iii), which carries both reproductive and excretory fluids. A vasectomy is a surgical procedure for contraceptive purposes in which the (iv) is cut and blocked so as to prevent sperms from being present in the semen. Select the correct sequence of terms to complete the above paragraph.

(2011)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | (i) | (ii) | (iii) | (iv) |
| (a) | Vas deferens | Epididymis | Urethra | Vas deferens |
| (b) | Vas deferens | Epididymis | Urethra | Seminiferons tubules |
| (c) | Epididymis | Vas deferens | Urethra | Vas deferens |
| (d) | Epididymis | Vas deferens | Urethra | Seminiferons tubules |

1. Which labelled parts in the given figure produce and store sperms respectively?
   1. S & Q
   2. P & R
   3. S & R
   4. R & Q (2012)

Diag 2012 NSO & NTSE 2012 (ii)

1. The diagram below shows a developing foetus in the uterus of a pregnant woman and its attachment to the placenta.

Which substance will decrease in concentration in the blood as it moves from X to Y?

* 1. Amino acids
  2. Urea
  3. Caron dioxide
  4. Growth hormone (2013)

1. Which of the following is not an example of natural method of vegetative propagation in plants?
   1. Roots in case of sweet potato and Dahlia
   2. Stem in case of potato and ginger
   3. Leaves in case of Bryophyllum and Kalanchoe
   4. Stem in case of rose and sugarcane (2013)
2. The given figure shows monthly changes in the human ovary during the reproductive cycle. Which of the following statements is most accurate regarding the labeled structure (s)?
   1. Before puberty, only structure ‘T’ undergoes meiosis
   2. The hormone produced by structure ‘R’
   3. The hormone produced by structure ‘S’ is responsible for the development of female secondary sex characters.
   4. The hormone produced by ‘P’ and ‘Q’ stimulate the proliferation of the endometrial lining of the uterine wall. (2014A)

Diag 2014 Set A paper

1. The graph below shows the hormonal changes during a normal menstrual cycle. What would be a likely consequence if the hormone represented by graph Q is lacking in an adult female?
   1. The uterine lining might not be sufficiently stable to support an implanted embryo.
   2. Levels of the hormone represented by graph P would be higher than normal
   3. Fertilization of ovum would fail to occur
   4. There would be no significant effect since the functions of the hormones overlap.

(2014B)

Diag 2014 Set B paper

**COLLECTIVE OF PAPER I , II AND III**

1. Peptic ulcer is a round and depressed lesion present on the inner membrane lining of stomach, which is caused by imbalance in the rate of gastric juice secretion. Which of the following layers of stomach is eroded that results in this lesion.
   1. Muscularis layer
   2. Mucosal layer
   3. Serosa layer
   4. Both (b) and (c)
   5. None of these
2. Beena conducted an experiment in which to potato tubers were peeled and a cavity was made in each of them. One of the potato tubers was boiled while the other one was not. The cavities in both tubers were filled with distilled water and they were then placed in Petri-dishes containing IM sucrose solution. The results are shown in the given figures.

Select the correct statement regarding this.

* 1. Water level decreased in the cavity of boiled potato tuber due to evaporation.
  2. Water level decreased in the cavity of boiled potato tuber due to osmosis
  3. In the cavity of unboiled potato tuber n sucrose was found while in the cavity of boiled potato tuber sur=crose was found.
  4. All of the above.

1. Read the following statements (a-c) and select the option which correctly fills up the blanks in any tow of the statements.
   1. (i) is a bacterial disease, while (2) is a viral disease.
   2. (3) is the mode of prevention of disease.
   3. (4) and (5) are disease which spread through sexual act.
2. (1) Chicken pox, (2) – Typhoid, (4) – Syphilis, (5) Cholera
3. (1) – Cholera, (2) – Chicken pox, (3) – prophylaxis
4. (3) – immunization, (4) – AIDS, (5) – Tuberculosis
5. (3) – vaccination, (4) – syphilis, (5) – Jaundice
6. The part of the brain which makes you remember the shape and colour of parrot even through you do not have parrot influent of your eyes is
   1. Cerebrum
   2. Cerebellum
   3. Mid brain
   4. Pons varolii
7. The given figure represents a plant cell after being placed in a strong sugar solution. The different parts have been labeled as a, b, c, d & e. Which of the following is the correct labeling?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | a | b | c | d | e |
| (A) | Cell wall | Sugar Solution | Protoplasm | Vacuole | Cell membrane |
| (B) | Cell membrane | Sugar Solution | Protoplasm | Vacuole | Cell wall |
| (C) | Cell wall | Sugar Solution | Vacuole | Protoplasm | Tonoplast |
| (D) | Cell membrane | Sugar Solution | Vacuole | Protoplasm | Tonoplast |

Diag 2011 NSO paper

1. Two individuals produced from a single zygott are
   1. Two girls looking similar
   2. Two girls not looking similar
   3. Two boys not looking similar
   4. One boy & one girl not looking similar
2. Refer the given statements & select the correct option:

Statement 1 : Hepatitis is a communicable disease

Statement 2 : Hepatitis can pass from an infected person to a healthy person.

* 1. Both the statements 1 & 2 are true and statement 2 is the correct explanation of statement 1.
  2. Both the statements 1 & 2 are true but statement 2 is not correct explanation of statement 1.
  3. Statements 1 is true but statement 2 is false.
  4. Both the statements 1 & 2 are false.

1. The sensitive plant mimosa pudica shows seismonastic movement as a result of which the whole leaf drops down. The dropping is due to \_\_\_\_\_\_\_\_\_\_
   1. Loss of turgidity of the basal part of the leaf.
   2. Swelling of the basal part of the leaf.
   3. Change in direction of the leaf growth.
   4. None of these.
2. A few statements describing certain features of reproduction are given, select the option that are true for both asexual and sexual reproduction from the options given below.
3. Gametic fusion takes place.
4. Transfer of genetic material takes place.
5. Reduction division takes place.
6. Progeny have some resemblance with parents.
   1. (i) & (ii)
   2. (ii) & (iii)
   3. (ii) & (iv)
   4. (i) & (iii)
7. The term ‘clone’ cannot be applied to offspring formed by sexual reproduction because:
   1. Offspring do not possess exact copies of parental DNA.
   2. DNA of only one parent is copied and passed on to the offspring.
   3. Offspring are formed at different times.
   4. DNA of parent and offspring are completely different.

**CHAPTER-4 HEREDITY AND REVOLUTION**

1. Darwin’s theory of Natural Selection is objected because
   1. It stresses upon slow and small variations.
   2. It explains the adaptation of certain inherited characters.
   3. It stresses on interspecific competition
   4. It explains that natural calamities take a heavy annual toll of lives.
   5. None of these (2008)
2. Speciation is the formation of one or more new species form an existing species. A new species of organism is fored when \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. A series of mutation occur so that an organism becomes different from others in population, but it still shows successful interbreeding.
   2. Climate changes drastically lading to structural changes in the given population.
   3. A group of organisms isolated from the rest of the species by geographical barrier.
   4. None of these (2009)
3. When parents P1 and P2 were crossed, F2 progeny was produced with three fourth similar features in phenotype of P2 and F1 and one fourth possessed contrasting traits. If the traits ‘T’ for tall and‘t’ for short. What will be the possible genotype of P1 and one fourth of F2?
   1. tt and Tt
   2. Tt and tt
   3. Tt and Tt
   4. tt and tt (2009)
4. Which of the following conclusions can be drawn from the given figure?
   1. It is composed of DNA and lipids
   2. It is composed of DNA and proteins
   3. It is composed of DNA only
   4. It is composed of RNA and proteins (2010)
5. Which of the following conclusions can be drawn from the given figure?
   1. It shows Medlel’s monohybrid cross
   2. The ratio of violet and white flowers is 3:1
   3. Violet flowers are dominant
   4. All of these (2010)

Diag from paper 2010

1. Preserved traces of living organisms are called fossils. What type of fossil is shown in the figure?
   1. Fossil of a tree trunk
   2. Fossil of Trilobite
   3. Fossil of Ammonite
   4. Fossil of knightia (2010)
2. Which of Mendel’s laws states that when tow homozygous individuals with one or more sets of contrasting characteristics are crossed, the characteristics which appear in F2 hybrids are dominant and those which do not are recessive?
   1. Law of segregation
   2. Law of dominance
   3. Law of independent assortment
   4. None of these (2011)
3. Given below are four statements (a-d) each with one or two blanks. Select the option which correctly fills up the blanks in any two of these statements.
   1. Wings of butterfly and birds look alike and are the results of (i) evolution.
   2. Vermiform appendix is a (i) organ and an (ii) evidence of evolution.
   3. Archaeopteryx shows (i) link between two different groups of organisation.
   4. According to Darwin evolution took place due to (i) and (ii) of the fittest.
4. (d) – (i) mutations, (ii) survival

(a) – (i) convergent

1. (a) – (i) divergent

(b) – (i) sedimentary, (ii) anatomical

1. (d) – (i) vestigial, (ii) anatomical

(a) – (i) missing

1. (d) – (i) connecting

(a) – (i) small variations (ii) multiplication

1. Study the given pedigree chart. The disease is caused by a recessive allete t and T is the dominant allele for normal condition.

|  |  |  |
| --- | --- | --- |
|  | Key | |
|  | - | Normal female |
|  | - | Normal Male |
|  | - | Diseased female |
|  | - | Diseased male |

Work out the genotypes of individual from the given pedigree chart and select the correct option.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | I-2 | II-1 | III-2 |  |
| (A) | Tt | tt | Tt |  |
| (B) | TT | tt | Tt |  |
| (C) | Tt | tt | TT |  |
| (D) | tt | Tt | Tt | (2013) |

1. The given figures depict the internal arrangement of bone structures in the limbs of different organisms. Which of the following statements is the most valid inference that can be drawn from a careful analysis of the figures?
   1. Bones of limbs of all the organisms have similar basis plan, therefore they may have common ancestor.
   2. Bones of limbs of all the organisms have the same basic structure but different shapes, therefore it is controlled only by the environmental factors.
   3. Bones of limbs of all the organisms do not have similar bone structure, therefore they may have evolved differently.
   4. The evolutionary increases in the number of digits (fingers) exemplify the use & disuse of organs.

(2013)

{Diag from pg NSO & NTSE 2013(ix)}

**CHAPTER-5 OUR ENVIRONMENT**

1. The rate at which producers in an ecosystem capture and store chemical energy as biomass is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   1. Gross primary productivity
   2. Net primary productivity
   3. Net secondary productivity
   4. Gross secondary productivity
2. The green plants are producers capture \_\_\_\_\_\_\_\_\_ of energy of sunlight that falls on their leaves to prepare food by photosynthesis.
   1. 2%
   2. 1%
   3. 10%
   4. 50%
3. In a grassland ecosystem which of the following groups of animals are likely to occupy the same trophic level?
   1. a, b, c
   2. b, c, e
   3. c, d, e
   4. b, d, e
4. Ozone higher up in the atmosphere acts as a shield to prevent UV rays from reaching the Earth’s surface. These UV rays are responsible for which of the following diseases?
   * 1. Skin cancer
     2. Eye damage
     3. Lung cancer
     4. Damage to immune system
     5. Colour blindness
   1. (i), (ii) & (iii)
   2. (i), (ii), (iv) & (v)
   3. (i), (iii) & (v)
   4. (i), (ii), (iii), (iv) & (v)
5. The given diagram shows some stages in the carbon cycle w, x, y & z are carbon compounds. What is W?
   1. Carbon compounds in animals
   2. Carbon compounds in plants
   3. Carbon dioxide in the air
   4. Coal and oil
6. A former regularly sprayed insecticides on his crops throughout the cropping season. The insecticide get washed off into a nearby lake where they were absorbed by the producers of the given food chain.

Unicellular green plants

Fresh water crustaceans

Smarfish

Fish eating birds

(i)

(ii)

(iv)

(iii)

Which of the following shows the correct levels of insecticides in these organisms at the end of the cropping season? [Amount of insecticides is shown in ppm (parts per million)]

* 1. (i) – 25.0, (ii) – 5.0, (iii) – 0.5, (iv) – 0.05
  2. (i) – 0.05, (ii) – 0.05, (iii) – 0.05, (iv) – 0.05
  3. (i) – 0.05, (ii) – 0.5, (iii) – 5.0, (iv) – 25.0
  4. (i) – 25.0, (ii) – 25.0, (iii) – 25.0, (iv) – 25.0 (2012)

1. The given figure shows four food chains with human at the top. Which two of these chains supply maximum amount of energy to the human?
   1. P and Q

Diag NSO & NTSE (iii)

* 1. P and S
  2. Q and R
  3. Q and S (2012)

1. Read the given statements and select the correct option

Statement 1 : The trees that present on road sides, usually do not show the growth of lichens.

Statement 2 : Lichens are very sensitive to the levels of contaminants like SO2 present in air.

* 1. Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1.
  2. Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.
  3. Statement 1 is true and statement 2 is false.
  4. Bother statements 1 and 2 are false.

1. Given figure shows a part of the food web in terrestrial ecosystem

Which of the following correctly represents pyramid of energy based on the given food web?

* 1. Diagram
  2. Diagram
  3. Diagram
  4. Diagram (2013)

1. The given figure shows part of a food web in a mangrove swamp in the sungei buloh wettands.

Diag Pg NSO & NTSE 2013 (ix)

* + - 1. Energy from the sun is used to convert CO2 to carbohydrates by mangrove plants & reeds: and mouthbrooder obtains the energy by consuming worm and shrimp.
      2. Mangrove plants are adapted to the abiotic factors due to development of pneumatophores, excretion of sodium chloride crystals through the stomata and possession of prop roots to withstands tidal forces.
      3. If all the shrimps are harvested, yield of mouthbrooders will increase.
      4. This particular mangrove swamp is ecologically valuable because it is able to support a rare endangered migratory bird.
  1. (ii), (iii), (iv) & (v)
  2. (ii), (iii) & (iv)
  3. (i), (ii), (iii) & (iv) & (v)
  4. (iii) & (iv) (2013)

**CHAPTER-6 MANAGEMENT OF NATURAL RESOURCES**

1. In the major cities, the most important factor for air pollute is the
   1. Thermal power station
   2. Smokes from kilns
   3. Burning of fossil fuels
   4. Suspended particle
   5. None of these
2. Water harvesting is an age old concept in India. Given below are few water harvesting and water conveyance structures (column 1) used in different states (column II). Match column I with column II and select the correct answer from the codes given below.

|  |  |  |  |
| --- | --- | --- | --- |
|  | column 1 |  | column II |
| (i) | Khadins, nadis | (i) | Bihar |
| (ii) | Bandharas, tals | (ii) | Kerala |
| (iii) | Budis | (iii) | U.P. |
| (iv) | Ahars, pynes | (iv) | Rajasthan |
| (v) | Surangams | (v) | Maharashtra |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | a | b | c | d | e |  |
| (a) | (i) | (ii) | (iv) | (iii) | (v) |  |
| (b) | (iv) | (v) | (iii) | (i) | (ii) |  |
| (c) | (iv) | (v) | (i) | (ii) | (iii) |  |
| (d) | (v) | (iv) | (iii) | (ii) | (i) | (2009) |

1. Which of the following conditions will give the most benefits to the farmers?
   1. Use of high quality seeds, fertilizers and no irrigation.
   2. Use of quality seeds, irrigation, fertilizers and crop protection measures.
   3. Use of ordinary seeds, irrigation and fertilizers.
   4. Use of quality seeds, irrigation and protection measures
2. Match column I with column II and select the correct option from the codes given below:

|  |  |  |  |
| --- | --- | --- | --- |
| Column 1 | | Column II | |
| (A) | Suicide bag of the cell | (i) | Mitochondria |
| (B) | Power house of the cell | (ii) | Ribosome |
| (C) | Protection factory of the cell | (iii) | Lysosome |
| (D) | Kitchen of the cell | (iv) | Endoplasmic reticular |
| (E) | Circulatory system of the cell | (v) | Chloroplast |

* 1. a – (iii), b – (i), c – (ii), d – (iv), e – (v)
  2. a – (iii), b – (i), c – (ii), d – (v), e – (iv)
  3. a – (iii), b – (i), c – (iv), d – (v), e – (ii)
  4. a – (i), b – (iii), c – (ii), d – (v), e – (iv)

1. The correct sequence of taxonomic categories is \_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. Division Class Family Order Genus Species
   2. Physical Order Class Family Genus Species
   3. Class Division order Family Genus Species
   4. Division Class order Family Genus Species
2. Mature sieve tube elements are devoid of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. Nucleus
   2. Cytoplasm
   3. Protein
   4. Mitochondria
3. Fill in the blanks and select the correct option.
   * 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ disease continues for many days and causes long term effect on the body.
     2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ disease continues for a few days and causes no long term effect on the body.
     3. Antibiotics commonly block biochemical path ways important for the growth of \_\_\_\_\_\_\_\_\_\_\_\_.
     4. Sleeping sickness is caused by \_\_\_\_\_\_\_\_\_\_\_\_ and Kala – azar is caused by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | (i) | (ii) | (iii) | (iv) |
| (a) | Chronic | Acute | Bacteria | Leis mania, Trypanosome |
| (b) | Acute | Chronic | Virus | Leis mania, Trypanosome |
| (c) | Chronic | Acute | Bacteria | Trypanosome, Leis mania |
| (d) | Acute | Chronic | Virus | Trypanosome, Leis mania |

1. Read the following statement and select the correct ones.
2. Erosion causes a significant loss of soil fertility by transporting organic matter & nutrientos that are essential part of the soil.
3. Mangrove plants are adapted to the abiotic factors due to development of pneumatophores, excretion of sodium chloride crystals through the stomata and possession of prop roots to withstand tidal forces.
4. About 84% of the total global evaporation occurs from ocean surface and 16% from land surface.
5. Excessive irrigation is semi-arid and arid regions can cause salt accumulation in the soil, due to which crop productivity may be enhanced.
   1. (i), (ii) and (iii)
   2. (ii), (iii) and (iv)
   3. (i), (ii), (iii) and (v)
   4. (i), (ii) and (v)
6. The PH of water sample collected from a river was found to be acidic in the range of 3.5-4.5. On the banks of the river were several factorials that were discharging effluents into the river. The effluents of which one of the following factories is the most likely cause for lowering the PH of river water?
   1. Soap and detergent factory.
   2. Lead battery manufacturing factory.
   3. Plastic cup manufacturing factors.
   4. Alcohol distillery.
7. Among the statements given below select the ones that correctly describe the concept of sustainable development.
8. Planned growth with minimum damage to the environment.
9. Growth irrespective of the extent of damage caused to the environment.
10. Stopping all developmental work to conserve the environment.
11. Growth that is acceptable to all stakeholders.
    1. (i) and (iv)
    2. (ii) and (iii)
    3. (ii) and (iv)
    4. (iii) only

**COLLECTIVE V,VI & VII**

1. The dwarf variety of garden pea plants are now known to have a mutation in a gene needed for synthesis of gibberellins. F1 plant obtained by Mendel from the tall (TT) x dwarf (tt) cross were tall.
   * 1. Gibberellins causes elongation of stems.
     2. Heterozygous (Tt) plants produce the same amount of gibberellins as homozygous dominant (TT) plant.
     3. Gibberellins induces production of auxin.
     4. Mutation may have accrued in a gene producing on enzyme.
   1. (i) & (ii)
   2. (ii), (iii) & (iv)
   3. (i), (ii), (iii) & (iv)
   4. (i), (ii) & (iv)
2. Pea plant can have smooth seeds or wrinkled seeds. One of the phenotypes is completely dominant over the other. A farmer decides to pollinate one flower of a plant with smooth seeds using poller from a plant with wrinkled seeds. The resulting pea pod has all smoothes seeds. Which of the following conclusion (s) can be drawn?
3. The allele for smooth seeds is dominant over that for wrinkled seeds.
4. The parent plant with smooth seeds is a homozygote.
5. The parent plant with wrinkled seeds is a homozygote.
   1. 1 only
   2. 2 only
   3. 1 and 3
   4. 1, 2, and 3
6. Which one of the following is not one of the direct conclusions that can be drawn from Mendel’s experiments?
   1. Only one parental trait is expressed.
   2. Two copies of each trait is inherited in sexually reproducing organism.
   3. For recessive trait to be expressed, both copies should be identical.
   4. Natural selection can after frequency of an inherited trait.
7. A large forest area got burnt in a massive fire. The species that would invade such bared area to mapidly colonize it have \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ characteristics

Fill up the blanks from the given choices and select the correct option.

1. Long lifespan
2. Rapid reproduction
3. Fast growth
4. Strong dispersal ability
5. Strong defense against natural enemies or predators
6. Large sized individuals.
   1. (i), (ii), (iii)
   2. (ii), (iii), (iv)
   3. (i), (iv), (vi)
   4. (iii), (iv), (vi)

(2014 A)

1. The given graph shows the concentration of dissolved oxygen along a river. At which point is sewage emptied into the river?

Concentration of dissolved oxygen

* 1. P
  2. Q
  3. R
  4. S

(2014 A)

time

1. A non-biodegradable insecticide known as DDT was sprayed on the pine trees. In which of the following organisms would most of the DDT eventually accumulate?
   1. Golden-crowned kinglet
   2. Pine borer
   3. Salamander
   4. Snake

Diag from 2014B paper

1. If X represents weight of soaked raisins and Y represents weight of dry raisins, then x 100 is a way to calculate percentage of :
   1. Water absorbed by raising in hypertonic solution.
   2. Water absorbed by raising in hypotonic solution.
   3. Water lost by raisins in hypotonic solution.
   4. Water lost by raisins in hypertonic solution.
2. With reference to the given food web, which of the following statements is true?
   1. There is only one organism that makes organic compounds from inorganic substances.
   2. There is no such one organism that converts organic compounds into inorganic substances.
   3. The inability of the oak tree to produce acorns would affect the red –tailed hawk more than the snake.
   4. Removal of x would cause an increase in the population of all the organisms.
3. Match column I with column II and select the correct option from the codes given below.

|  |  |  |  |
| --- | --- | --- | --- |
| Column I | | Column II | |
| (A) | Increased egg production | (i) | Viral disease |
| (B) | White leghorn | (ii) | Carp |
| (C) | Ranikhet | (iii) | Fish by-product |
| (D) | Isinglass | (iv) | Layers |
| (E) | Silver carp | (v) | Exotic fish |
| (F) | Bombay duck | (vi) | Silver revolution |
| (G) | Rohu & catta | (vii) | Marine fish |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | (A) | (B) | (C) | (D) | (E) | (F) | (G) |
| (a) | (iv) | (vi) | (i) | (iii) | (v) | (vii) | (ii) |
| (b) | (vi) | (iv) | (i) | (iii) | (vii) | (v) | (ii) |
| (c) | (vi) | (iv) | (i) | (vii) | (v) | (iii) | (ii) |
| (d) | (vi) | (iv) | (i) | (iii) | (v) | (vii) | (ii) |

1. Study carefully the key depicting the type of plant tissues:

Key:

Types of meristematic tissue – P, Q

Types of permanent simple tissue – R, S

Types of parenchymatous tissue – T, U

Identify these tissues (P to U) from the list of their functions given below.

1. It provides mechanical support, elasticity and tensile strength to the body.
2. This tissue is responsible for linear growth of an organ.
3. It provides a protective covering around seeds and nuts.
4. It provides buoyancy to aquatic plant to help them float.
5. It is responsible for growth of leaves and internodes.
6. It performs the process of photosynthesis.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (i) | (ii) | (iii) | (iv) | (v) | (vi) |
| (a) | Q | S | T | R | U | P |
| (b) | S | Q | R | T | P | U |
| (c) | T | U | P | Q | S | R |
| (d) | P | Q | T | R | U | S |

**SAI + SAII**

1. Which of the following statements is not true for digestion of food in human beings?
   1. Digestion of fats is facilitated by components present in digestive juice secreted by largest gland of the body.
   2. Acidic chime is made alkaline by hepatopancreatic secretions which are poured into the duodenum.
   3. Pancreatic juice secreted from endocrine part of pancreas is a complete digestive juice as it contains enzymes for digestion of all principal dietary components.
   4. Digestion of carbohydrates, proteins and lipids starts in oral cavity, stomach and intensive respectively and completes in small intestine.
2. The steps necessary for setting up the experiment “ To demonstrate that light is necessary for photosynthesis” are not given here in proper sequence.
3. Keep the potted plant in scenlight for 3-4 hours.
4. Keep the potted plant in darkness for about 48 hours.
5. Cover the leaf of the plant with a strip of black paper.
6. Pluck the leaf and test in for starch.

The correct sequence of step is:

* 1. I, II, IV, II
  2. I, IV, III, II
  3. II, IV, III, I
  4. II, III, I, IV

1. Kidney of vertebrates resembles with contractile vacuole of protozoans in
   1. Expelling out glucose
   2. Expelling out urea and uric acid
   3. Expelling out excess of water
   4. Expelling out salts
2. Match column I with Column II

|  |  |  |  |
| --- | --- | --- | --- |
| Column I | | Column II | |
| (A) | Cretinism | (i) | Under secretion of growth hormones, in childhood. |
| (B) | Diabetes mellitus | (ii) | Over secretion of growth hormone during childhood. |
| (C) | Dwarfism | (iii) | Excess of glucose in blood. |
| (D) | Gigantism | (iv) | Over secretion of thyroxin |
| (E) | Acromegaly | (v) | Dwarfism and mental retardation |
| (F) | Exophthalmia goitre | (vi) | Over secretion of growth hormones, in adults |

* 1. a (i), b (ii), c (iii), d (iv), e (vi), f (v)
  2. a (v), b (ii), c (i), d (ii), e (vi), f (iv)
  3. a (iv), b (i), c (iii), d (ii), e (vi), f (v)
  4. a (vi), b (i), c (ii), d (ii), e (v), f (iv)

1. Which of the following statements are true?
2. Sudden action in response to something in the environment is called reflex action.
3. Sensory neurons carry signals from spinal cord to muscles.
4. Motor neurons carry signals from receptors to spinal cord.
5. The path through which signals are transmitted from a receptor to a muscle or a gland is called reflex are.

* 1. (i) and (ii)
  2. (i) and (iii)
  3. (i) and (iv)
  4. (i), (ii) and (iii)

1. The dramatic changes in body features associated with puberty are mainly because of secretions of:
   1. Estrogen from testes and testosterone from ovary.
   2. Estrogen from adrenal gland and testosterone from pituitary gland
   3. Testosterone from testes and estrogen from ovary.
   4. Testosterone from thyroid gland and estrogen from pituitary gland.
2. Match the labeled parts of the given figure with the correct option.

(Diag from pg157 MTG)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | (i) | (ii) | (iii) | (iv) | (v) |
| (a) | Fallopian tube | Oviduct | Uterus | Cervix | Vagina |
| (b) | Oviduct | Vas deferens | Ovary | Vagina | Cervix |
| (c) | Ovary | Oviduct | Uterus | Cervix | Vagina |
| (d) | Ovary | Fallopian tube | Uterus | Vagina | Cervix |

1. Study the different conclusion drawn by students of a class on the basis of observation of preserved/available specimens of plants and animals.
2. Potato and sweet potato are analogous organs in plants.
3. Wings of insects and wings of birds are homologues organs in animals.
4. Wings of insects and wings of Bats are analogous organs in animals.
5. Thorns of citrus and tendrils of cucurbit are analogous organs in plants.

The correct conclusions are

* 1. (i) and (ii)
  2. (ii) and (iv)
  3. (i) and (iii)
  4. (iii) and (iv)

1. Paralysis is
   1. Anaerobic burning of wastes at high temperature.
   2. Aerobic burning of wastes at high temperature
   3. Aerobic burning of wastes at low temperature.
   4. None of these above
2. Given below are a few statements related to biodiversity. Pock those that correctly describe the concept of biodiversity.
   * + 1. Biodiversity refers to the different species of flora and fauna present in an area.
       2. Biodiversity refers to only the flora of a given area.
       3. Biodiversity is greater in a forest.
       4. Biodiversity refers to the total number of individual of a particular species living in an area.
   1. (i) and (ii)
   2. (ii) and (iv)
   3. (i) and (iii)
   4. (ii) and (iii)