12TH CBSE BIOLOGY 5 MCQS TESTS

TEST 1

1. Long ribbon-like pollen grains are seen in some :

   (A) Aquatic plants (B) Wind-pollinated grasses

   (C) Gymnosperms (D) Bird-pollinated flowers

2. Estrogen is secreted by :

   (A) Corpus luteum

   (B) Membrane granulosa of Graafian follicle

   (C) Pituitary gland

   (D) Germinal epithelium

3. Amniocentesis is a technique that is used to :

   (A) determine any disease of the heart

   (B) determine any genetic disorder of the foetus

   (C) determine any disorder of the brain

   (D) detect any abnormality in the bone formation

4. In humans, non-disjunction of the 21st pair of chromosomes leads to :

   (A) Acquired Immune Deficiency Syndrome

   (B) Klinefelter's Syndrome

   (C) Turner's Syndrome

   (D) Down's Syndrome

5. Which one of the following codons has dual function ?

   (A) AUG

   (B) AUC

   (C) ACU

   (D) ACA

6. Which one of the following options gives the correct temperature condition and the mixture of the gaseous components that were used by S.L. Miller in 1953 to prove abiogenesis of life ?

(A) CH_4, H_2, NO_2 and water vapour at 1800°C

(B) CH_4, H_2, NH_3 and water vapour at 1800°C

(C) CO_2, H_2, NH_3 and water vapour at 800°C

(D) CH_4, H_2, NH_3 and water vapour at 800°C

7. The mosquito-borne disease in humans causing chronic inflammation of the lymphatic vessels is :

(A) Elephantiasis

(B) Ascariasis

(C) Ringworm

(D) Amoebiasis

8. In plants, which one of the following helps in the absorption of phosphorus from soil ?

(A) *Glomus* (B) *Rhizobium*

(C) *Frankia* (D) *Anabaena*

9. The most primitive ancestor of humans is :

(A) *Homo habilis* (B) *Australopithecus*

(C) *Ramapithecus* (D) *Homo neanderthalensis*

10. The sequence that controls the copy number of linked DNA in the vector is termed :

(A) Selectable marker (B) Ori site

(C) Palindromic sequence (D) Recognition site

11. Crystals of Bt toxin produced by some bacteria, do not kill the bacteria producing them because :

(A) bacteria are resistant to the toxin

(B) toxin is immature

(C) toxin is inactive

(D) bacteria encloses 'toxin' in a special capsule

12. The population interaction where one species is harmed and the other is unaffected is :

(A) Amensalism

(B) Commensalism

(C) Parasitism

(D) Predation

*For Questions number **13** to **16**, two statements are given — one labelled as Assertion (A) and the other labelled as Reason (R). Select the correct answer to these questions from the codes (A), (B), (C) and (D) as given below.*

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is ***not*** the correct explanation of Assertion (A).

(C) Assertion (A) is true, but Reason (R) is false.

(D) Assertion (A) is false, but Reason (R) is true.

13. *Assertion (A) :* Periodic abstinence is a method in which couples avoid coitus from day 10 to 17 of menstrual cycle.

Reason (R) : Periodic abstinence has limited effectiveness because menstrual cycles are not always regular.

14. *Assertion (A) :* *Streptococcus pneumoniae* and *Haemophilus influenzae* are responsible for causing infectious diseases in human beings.

Reason (R) : A healthy person acquires the infection by inhaling the droplets/aerosols released by an infected person.

15. *Assertion (A) :* Biotechnology produces transgenic micro-organisms that act as microfactories for proteins.

Reason (R) : To produce proteins for human use like insulin, transgenic microorganisms can be developed.

16. *Assertion (A) :* Gross primary productivity is always less than net primary productivity.

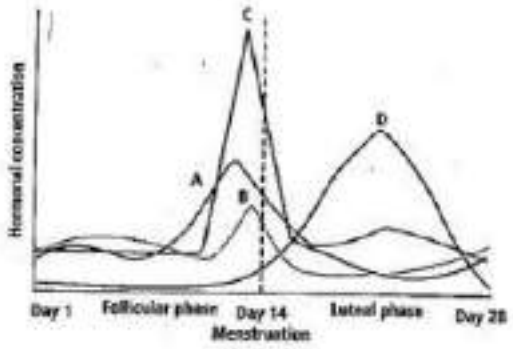
Reason (R) : Rate of synthesis of organic matter by consumers is known as secondary productivity.

TEST 2

1. Identify the statement that correctly differentiates between chasmogamous and cleistogamous flowers.

a) Chasmogamous flowers are always self-pollinating, while cleistogamous flowers require cross-pollination.
b) Chasmogamous flowers have their petals open and are adapted for cross-pollination, whereas cleistogamous flowers remain closed and are adapted for self-pollination.
c) Cleistogamous flowers are typically larger and more colorful to attract pollinators, while chasmogamous flowers are usually smaller and less conspicuous.
d) Both chasmogamous and cleistogamous flowers require external pollinators for reproduction.

2. Refer to the chart given below represents the hormones produced during menstrual cycle. Identify the correct match of hormones.



	A	B	C	D
a	FSH	Estrogen	Progesterone	LH
b	LH	Progesterone	Estrogen	FSH
c	Estrogen	FSH	LH	Progesterone
d	Progesterone	LH	FSH	Estrogen

3. Identify the methodology adopted to find out all the genes that produce proteins in Human Genome Project (HGP)?

a) Sequence Annotation b) Expressed Sequence Tags
c) Karyotyping d) DNA finger printing.

4. A researcher is investigating a new drug that is hypothesized to inhibit the function of DNA ligase, an enzyme crucial for DNA replication. Which of the following outcomes is most likely to occur in cells treated with this drug?

a) Increased synthesis of RNA primers on the leading strand
b) Formation of incomplete or fragmented DNA strands on the lagging strand
c) Enhanced speed of DNA replication overall
d) Inhibition of DNA unwinding at the replication fork

5. In a plant species, flower color is determined by a single gene with two alleles: R (red) and r (white). Incomplete dominance is observed, where heterozygous plants exhibit pink flowers. If a pink-flowered plant is crossed with a white-flowered plant, what is the expected phenotypic ratio of the offspring?

a) 1 red : 1 pink
b) 1 pink : 1 white
c) 1 red : 2 pink : 1 white
d) 3 pink : 1 white

6. Imagine an island ecosystem where a single species of bird, colonizes a previously uninhabited island. Over time, different populations of this bird evolve into distinct species with specialized beak shapes adapted to various available food sources on the island. If you were to analyze the evolutionary process of these bird species, which of the following scenarios would best illustrate

adaptive radiation?

a) Bird populations develop different beak shapes to exploit various food sources on the island, depicting divergent evolution.

b) Bird populations evolve different beak shapes due to random genetic drift, with no relation to the availability of food sources depicting convergent evolution

c) Bird populations remain morphologically similar despite the different food sources available on the island showing no evolution.

d) Bird populations develop similar beak shapes regardless of the different food sources depicting random evolution.

7. A colour blind woman marries a normal man, what percentage of their children will be colour blind.
a) All their children will be colour blind.
b) All their sons will be colour blind.
c) All their daughters will be colour blind.
d) 50% sons and 50% daughters will be colour blind. .

8. In the following, in each set, a conservation approach and an example of a method of conservation are given

(a) In situ conservation - Biosphere Reserve

(b) Ex situ conservation - Sacred groves

(c) In situ conservation - Seed bank

(d) Ex situ conservation - Cryopreservation

Select the option with the correct match of approach and method:

a) (a) and (c)

b) (a) and (d)

c) (b) and (d)

d) (a) and (b)

9. Given below are pairs of disease and causative organism. Which out of these is not a matching pair?

a) *Salmonella typhi* - typhoid

b) *Haemophilus influenza* - pneumonia

c) *Wuchereria malayi* - Ascariasis

d) *Entamoeba histilytica* - Amoebiasis

10. In the context of sewage treatment, which of the following stage is specifically designed to remove grit from sewage before further treatment?

a) Primary treatment- sedimentation

b) Secondary treatment- aerobic

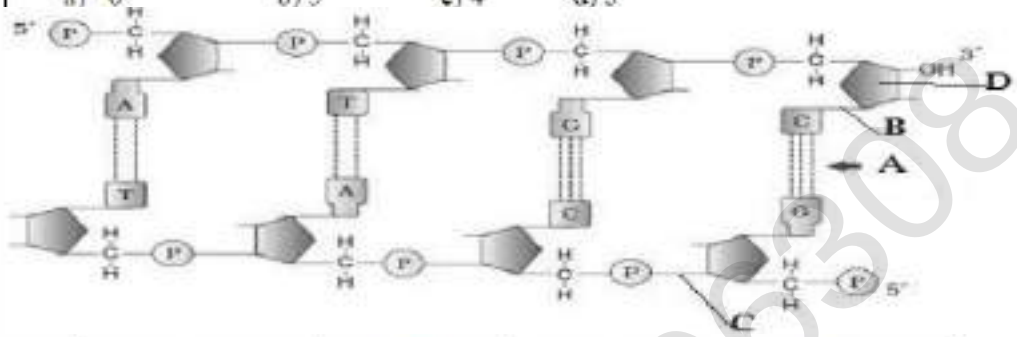
c) Secondary treatment- anaerobic

d) Primary treatment- sequential filtration.

11. The sequence of bases on the coding strand of the DNA is as follows-
TACCATCATCATTGACATCAT. How many amino acids will be coded by the m-RNA that is transcribed?

a) 6 b) 5 c) 4 d) 3

12.



	A	B	C	D
a)	Phospho ester	Glycosidic bond	Deoxyribose sugar	Hydrogen bond
b)	Hydrogen bond	Glycosidic bond	Phospho ester	Deoxyribose sugar
c)	Glycosidic bond	Phospho ester	Deoxyribose sugar	Hydrogen bond
d)	Deoxyribose sugar	Hydrogen bond	Glycosidic bond	Phospho ester

Question No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

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

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

C. A is true but R is false.

D. A is False but R is true.

13.	**Assertion**: Interferon helps in the elimination of viral infections. **Reason:** Interferon is released by bacteria infected cells which make them resistant to viral infection.
14.	**Assertion:** Transgenic animals are used to study the physiology and development of an organism. **Reason:** Transgenic animals are specifically designed to allow the study of regulation of genes
15.	**Assertion:** There are two key concepts in Darwinian theory of evolution **Reason**: It is Natural selection and Saltation.
16.	**Assertion:** Pyramid of biomass is always upright for aquatic ecosystem. **Reason:** Total biomass of a fish in a specific area is more than that of planktons.

TEST 3

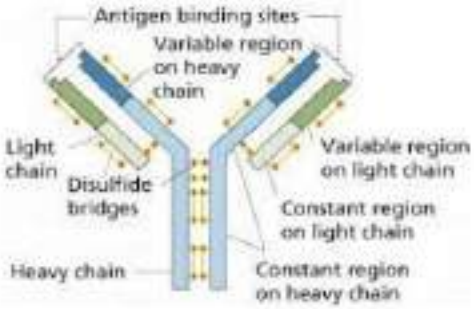
1	Which among the following came into India as a contaminant with imported wheat, has become ubiquitous in occurrence and causes pollen allergy (a) *Lantana* (b) *Eicchhornia* (c) *Parthenium* (d) *Chenopodium*
2.	Ectopic pregnancies are referred as- (a) Pregnancies with genetic abnormalities (b) Implantation of defective embryo in the uterus (c) Implantation of embryo at site other than the uterus (d) Pregnancies terminated due to hormonal imbalance

3 Which of the following statements indicates parallelism in genes and chromosomes?
(i) They occur in pairs
(ii) They segregate during gamete formation
(iii) They show linkage
(iv) Independent pairs segregate independently
(a) (i) and (iii) (b) (ii) and (iii)
(c) (i), (ii) and (iii) (d) (i), (ii) and (iv)

4 In *E.coli*, the lac operon gets switched on when
a) lactose is present and it binds to the repressor
b) repressor binds to operator
c) RNA polymerase binds to the operator
d) lactose is present and it binds to RNA polymerase

5 The separated bands of desired DNA are cut out from the agarose gel and extracted from gel piece is known as
a) southern blotting
b) western blotting
c) gel electrophoresis
d) elution

6 Observe the following diagram-
i)Each antibody molecule has four disulphide chains.
ii) an antibody is represented as H2L2.
iii) antibodies are found in the blood
iv) Different types of antibodies are produced outside our body.



Identify the correct pair from the options given below-
(a) i&ii (b) iii & iv (c) i& iv (d) ii &iii

7 BOD of four water bodies A, B, C and D were 20 mg/L, 8 mg/L, 300 mg/L and 100 mg/L respectively. Which sample of the water body is more polluted?
(a) A (b) C
(c) D (d) B

8 The main reason why antibiotics could not always treat the bacteria-mediated diseases is
(a) insensitivity of the individual following prolonged exposure to antibiotics
(b) inactivation of antibiotics by bacterial enzymes
(c) decreased efficiency of immune system
(d) the development of mutant bacterial strains resistant to antibiotics

9	In a given plant, red colour (R) of fruits is dominant over white fruit (r); and tallness (T) is dominant over dwarfness (t). If a plant with genotype RrTt is crossed with a plant of genotype rrtt, what will be the percentage of tall plants with red fruits in the next generation? (a) 25% (b)50% (c)40% (d)60%
10	The hot spots of biodiversity conservation are characterized by: (a) high levels of species richness and low degree of endemism (b) low levels of species richness and high degree of endemism (c) low levels of species richness and high degree of endemism (d) high levels of species richness and high degree of endemism
11	Which of the following is an example of indirect estimate of population size? (a) Counting the total number. (b) Percent cover or biomass. (c) Relative density measure as the number of fish caught per trap. (d) Tiger census based on pug marks and faecal pellets.
12	Which of the following is/are used in recombinant DNA technology? 1. Agarose gel 2. Restriction endonuclease 3. Plasmid vector 4. Ethidium bromide (a) 1 and 2 (b) 2 and 3 (c) 3 and 4 (d) All of these

Question No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

A. Both A and R are true and R is the correct explanation of A.
B. Both A and R are true and R is not the correct explanation of A.
C. A is true but R is false.
D. A is False but R is true.

13	**Assertion:** The middle piece of sperm is called as power house of the sperm. **Reason:** The numerous mitochondria coiling around axial filament produce energy for the movement of the tail.
14	**Assertion.** When more than one adaptive radiation appeared to have occurred in an isolated geographical area, one can call this convergent evolution **Reason:** Placental mammals in Australia exhibit adaptive radiation
15	**Assertion**: Transgenic food may cause toxicity. **Reason**: transgenic substance have high nutrient content.
16	**Assertion**: The interaction between sea anemone that has stinging tentacles and the clown fish that lives among them is Commensalism. **Reason**: The fish gets protection from predators which stay away from the stinging tentacles and anemone gets the benefit of transporting to other places.

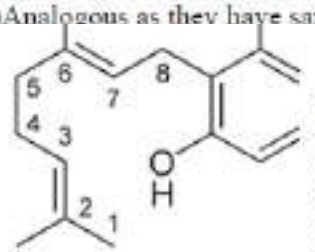
TEST 4

1 Which of the following is correct about exponential growth model
(a) The population seldom grows beyond carrying capacity
(b)It occurs when resources are unlimited
(c)A stationary phase is reached
(d)It has four phases-lag, exponential, decelerating and asymptote

2 A cross between F1 hybrid and a recessive parent gives offspring in the ratio of
(a) 1:1(b) 2:1(c) 3:1(d) 4:1

3 The picture of wings of insect, pterodactyl, bird and bat given in the picture are;

(a)Homologous as they have same function but different structure
(b)Analogous as they have different structure and function
(c)Homologous as they have same structure and function
(d)Analogous as they have same function but different structure

4 

The structure of which of the following drug is given here .
(a) Opioid from Opium poppy
(b)Cocaine from Erythroxylum coeca
(c) Morphine from Papaver somniferum
(d)Cannabinoid from Cannabis sativa

5 Choose the correct match.

	Bioactive substance	Role
(i)	Statin	(a)Removal of oil stain
(ii)	Cyclosporin A	(b)Removal of clots from blood vessel
(iii)	Streptokinase	(c)Lowering of blood cholesterol
(iv)	Lipase	(d)Immunosuppressive agent

(a). i b, ii c, iii a, iv d
(b). i d, ii b, iii a, iv c
(c). i d, ii a, iii d, iv c
(d). i c, ii d, iii b, iv a

6 The population of sparrows inhabiting a garden decreased dramatically. It was found that the mortality was equal to natality for the given population.
Which of the following is TRUE for the population of sparrows?
(a) The number of emigrants was equal to immigrants.
(b) The number of emigrants was less than immigrants.
(c) The number of emigrants was more than immigrants.
(d) The population of sparrows was unaffected by emigrants and Immigrants.

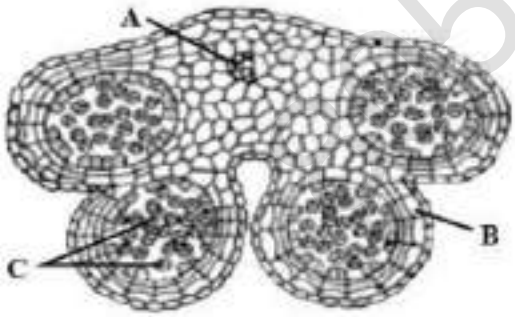
7 Select the option that has the correct sequence of events of human female reproductive cycle
(i)Secretion of FSH
(ii)Ovulation
(iii)Growth of corpus luteum
(iv)Growth of follicle and oogenesis
(v)Sudden increase in LH
options:
(a) (i)(iii),(v),(iv)(ii)
(b) (i)((iv),(v)(ii),(iii)
(c) (iv)(i),(v),(iii),(ii)
(d) (v)(ii),(iii),(iv)(i)

8 Match the contraceptive methods given under Column-I with their examples given under Column-II and select the correct option from the codes given below

Column-I	Column-II
A.Chemical	(i)Tubectomy and vasectomy
B.IUDs	(ii)Copper T and loop
C.Barriers	(iii)Condom and cervical cap
D.Sterilisation	(iv)Spermicidal jelly and foam
	(v)Coitus interruptus and calendar method

(a) A – (iv), B – (ii), C – (iii), D – (i)
(b) A – (iv), B – (ii), C – (iii), D – (i
(c) A – (i), B – (iii), C – (ii), D – (v)
(d) A – (iv), B – (ii), C – (v), D – (i)

9 Study the following diagram of Transverse Section of a young anther of an angiosperm.



Select the option where parts 'A', 'B' and 'C' are correctly identified.

(a) A – Connective, B – Endothecium, C – Pollen grain.
(b) A – Endothecium, B – Connective, C – Pollen grain.
(c) A – Pollen grain, B – Connective, C – Endothecium.
(a) A – Endothecium, B – Pollen grain, C – Connective.

10	Which of the following enzymes is NOT typically involved in the isolation of DNA from plant cells? (a) Cellulase (b) Ribonuclease (c) Protease (d)Amylase
11	The biomass available in plants for consumption by herbivores and decomposers is called a)gross primary productivity (b)net primary productivity (c) standing crop (d)secondary productivity
12	The criterion for the movement of DNA fragments on agarose gel during gel electrophoresis is- (a)The larger the fragments, farther it moves (b)The smaller the fragment size, the farther it moves (c)Positively charged fragments move to farther end (d)Negatively charged fragments do not move
	ASSERTION REASON QUESTIONS
	Option a: both assertion and reason are correct, reason is the correct explanation of assertion. Option b: both assertion and reason are correct, but reason is not the correct explanation of assertion. Option c: assertion is correct, but reason is wrong. Option d: assertion is wrong, reason is correct.
13	Assertion : Agro bacterium tumefaciens is a pathogen for several monocot plants Reason : It is able to deliver a piece of DNA known as T-DNA to transform normal plant cell in to tumour
14	Assertion: Predators in nature are 'prudent'. Reason: If a predator is too efficient and over exploits its prey, then the prey might become extinct and following it, the predator will also become extinct for lack of food.
15	Assertion: A single DNA dependant RNA polymerase catalyses transcription of all types of RNA in bacteria Reason: RNA promoter binds with the sigma factor and initiates transcription.
16	Assertion: Lactobacillus LAB grow in milk and convert it to curd. Reason: In our stomach, the LAB plays a very beneficial role in checking disease causing microbes.

TEST 5

1 Appearance of dry, scaly lesions on various parts of the body, such as sk are the main symptoms of this disease. It is caused by-

a. *Microsporum*
b. *Trichophyton*
c. *Epidermophyton*
d. All of the above

2 In experiment to isolate DNA, liquid soap is used as enzyme to remove components in the material. Why is Chilled Ethanol used in the last step

a. Clear the DNA
b. Precipitates out of the DNA

3 The 'intra uterine devices'(IUDs) are inserted by doctors or expert nurses. Select the hormone releasing IUD from given-

a. Multiload 375
b. Multiload 200
c. CuT
d. LNG-20

4 In pea plants, yellow seeds are dominant to green. If a heterozygous yellow seeded plant is crossed with green seed plant, what ratio of yellow and green seed plant would you expect in F1 generation?

a. 50:50
b. 9:1
c. 1:3
d. 3:1

5 The chemical defense mechanism prevents plants from its predators, the chemical produced by the plants is highly toxic and causes serious consequences to predator animals. So, more of the animals did not use these plants in the form of food. Select the name of chemical which is not used by plants to protect own self from browsing –

a. Glycosides
b. Strychnine
c. Quinine
d. Calotropis

6 When the blastocyst becomes embedded in the endometrium of the uterus, the process is called:

a. Trophoblast
b. Implantation
c. Fertilization
d. Blastomeres

7 Chargaff's rule indicates that the ratio of purines to pyrimidines in dsDNA is

a. Always equal to one
b. Greater than one
c. Less than one
d. Variable depending on the organism

8 On what basic principle the 'Enzyme-Linked Immunosorbent Assay' works?

a. Mechanism of enzyme action
b. Role of chemicals in body
c. Antigen-antibody interaction
d. Neutralising the chemicals

9 Identify the Scutellum in given diagram:

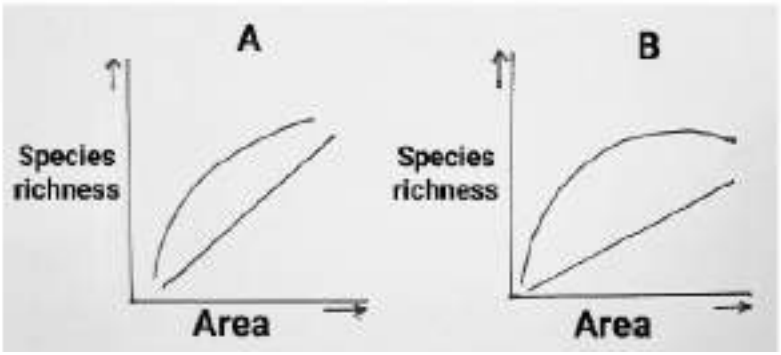
a. (i)
b. (ii)
c. (iii)
d. (iv)

10 The two samples of the water are taken from different sources, labeled as A and B. During the process of supply of oxygen, sample A requires a smaller amount of Oxygen, and sample B requires a high amount of oxygen to oxidize organic materials present in them. So, which option is correct related to it -

a. Sample A is more polluted
b. Sample B is more polluted
c. Sample A and B are equally polluted
d. Sample B is less polluted

11 Compare the given two graphs of different places are given (A and B). On the basis of graph given select the region have more species diversity.

a. A
b. B
c. A and B both
d. No any answer is correct



12 The example of human ancestor probably did not eat meat-

a. *Dryopithecus*
b. *Homo habilis*
c. *Australopithecines*
d. *Homo erectus*

Question No. 13 to 16 consists of two statements-Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below:

A. **Both A and R are true, and R is the Correct Explanation of A.**
B. **Both A and R are true, and R is not the Correct Explanation of A.**
C. **A is true but R is false.**
D. **A is False but R is True.**

13 **Assertion (A):** Gross primary productivity is always less than net primary productivity.
Reason (R): Rate of synthesis of organic matter by consumers is known as secondary productivity.

14 **Assertion (A):** Test cross is used to determine whether the individual is homozygous or heterozygous.
Reason (R): In the test cross, individual is crossed with the recessive parent.

15 **Assertion (A):** Virus infected cells secrete proteins.
Reason (R): These proteins are called interferons, it protect non-infected cells from further viral infections.

16 **Assertion (A):** Number of species in a community really matters to the functioning of ecosystem.
Reason (R): Communities with more number of species generally tend to be more stable.

TEST 1 ANSWERS

1	(A) / Aquatic plants
2	(B) / Membrane granulosa of Graafian follicle
3	(B) / Determine any genetic disorder of the foetus
4	(D) / Down's Syndrome
5	(A) / AUG
6	(D) / CH_4, H_2, NH_3 and water vapour at 800°C
7	(A) / Elephantiasis
8	(A) / Glomus
9	(C) / *Ramapithecus*
10	(B) / Ori site
11	(C) / toxin is inactive
12	(A) / Amensalism
13	(B) / Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
14	(A) / Both Assertion (A) and Reason (R) are true, but Reason (R) is the correct explanation of Assertion (A)
15	(B) / Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A
16	(D) / Assertion (A) is false, but Reason (R) is true.

TEST 2 ANSWERS

1.	b) Chasmogamous flowers have their petals open and are adapted for cross-pollination, whereas cleistogamous flowers remain closed and are adapted for self-pollination.
2.	c) Estrogen FSH LH Progesterone
3.	b) Expressed Sequence Tags
4.	b) Formation of incomplete or fragmented DNA strands on the lagging strand
5.	b) 1 pink : 1 white
6.	a) Bird populations develop different beak shapes to exploit various food sources on the island, depicting divergent evolution.
7.	b) All their sons will be colour blind.
8.	b) (a) and (d)

9.	c)Wuchereria malayi- Ascariasis
10.	a) Primary treatment- sedimentation
11.	c) 4
12.	b)Hydrogen bond Glycosidic bond Phospho ester Deoxyribose sugar
13.	**C. A is true but R is false**
14.	**A. Both A and R are true and R is the correct explanation of A**
15.	**C.A is true but R is false.**
16.	**D. A is False but R is true.**

TEST 3 ANSWERS

1	(c) *Parthenium*
2.	(c) Implantation of embryo at site other than the uterus
3	(d) (i), (ii) and (iv).
4	(a) Lactose is present and it binds to the repressor
5	(d) elution
6	(d) ii &iii
7	(b) C
8	(d) the development of mutant bacterial strains resistant to antibiotics
9	(a) 25%
10	(d)high levels of species richness and high degree of endemism
11	(d) Tiger census based on pug marks and faecal pellets.
12	(d) All of these
13	(A) Both A and R are true and R is the correct explanation of A.
14	(B) Both A and R are true and R is not the correct explanation of A
15	B) Both A and R are true and R is not the correct explanation of A.
16	(C) A is True but R is False.

TEST 4 ANSWERS

1	(b)It occurs when resources are unlimited
2	(a) 1.1
3	(d)Analogous as they have same function but different structure
4	(d) Cannabinoid from cannabis sativa
5	(d). i c, ii d, iii b, iv a.
6	(c). The number of emigrants was more than immigrants.
7	(b).(i)((iv),(v)(ii),(iii)
8	(a)A – (iv), B – (ii), C – (iii), D – (i)
9	(a) A – Connective, B – Endothecium, C – Pollen grain
10	(d) Amylase
11	(b) Net primary productivity
12	(b)The smaller the fragment size, the farther it moves
	ASSERTION REASON QUESTIONS
13	(a): Both assertion and reason are correct; reason is the correct explanation of assertion.
14	(a): Both assertion and reason are correct; reason is the correct explanation of assertion.
15	(c): Assertion is correct, but reason is wrong.
16	(b): Both assertion and reason are correct, but reason is not the correct explanation of assertion.

TEST 5 ANSWERS

1	d	5	d	9	a	13	d
2	b	6	b	10	b	14	b
3	d	7	a	11	a	15	a
4	a	8	c	12	b	16	a