

12th Biology Book Back Questions - New Book

12th Standard – BIO BOTANYNEW BOOK1.ASEXUAL AND SEXUAL REPRODUCTION IN PLANTS**I. Choose the Correct Answer**

- Choose the correct statement from the following
 - Gametes are involved in asexual reproduction
 - Bacteria reproduce asexually by budding
 - Conidia formation is a method of sexual reproduction
 - Yeast reproduce by budding**
- An eminent Indian embryologist is
 - S.R.Kashyap
 - P.Maheswari**
 - M.S. Swaminathan
 - K.C.Mehta
- Identify the correctly matched pair
 - Tuber - Allium cepa
 - Sucker – Pistia
 - Rhizome - Musa**
 - Stolon - Zingiber
- Pollen tube was discovered by
 - J.G.Kolreuter
 - G.B.Amici**
 - E.Strasburger
 - E.Hanning
- Size of pollen grain in Myosotis
 - 10 micrometer**
 - 20 micrometer
 - 200 micrometer
 - 2000 micrometer
- First cell of male gametophyte in angiosperm is
 - Microspore**
 - megaspore
 - Nucleus
 - Primary Endosperm Nucleus
- Match the following

I) External fertilization	i) pollen grain
II) Androecium	ii) anther wall
III) Male gametophyte	iii) algae
IV) Primary parietal layer	iv) stamens

 - I-iv;II-i;III-ii;IV-iii
 - I-iii;II-iv;III-i;IV-ii**
 - I-iii;II-iv;III-ii,IV-I
 - I-iii;II-i;III-iv;IV-ii
- Arrange the layers of anther wall from locus to periphery
 - Epidermis,middle layers, tapetum, endothecium
 - Tapetum, middle layers, epidermis, endothecium
 - Endothecium, epidermis, middle layers, tapetum
 - Tapetum, middle layers endothecium epidermis**
- Identify the incorrect pair
 - sporopollenin - exine of pollen grain
 - tapetum – nutritive tissue for developing microspores
 - Nucellus – nutritive tissue for developing embryo**

- d) obturator – directs the pollen tube into micropyle
10. Assertion : Sporopollenin preserves pollen in fossil deposits
Reason : Sporopollenin is resistant to physical and biological decomposition
- a) assertion is true; reason is false
b) assertion is false; reason is true
c) Both Assertion and reason are not true
d) **Both Assertion and reason are true.**
11. Choose the correct statement(s) about tenuinucellate ovule
- a) **Sporogenous cell is hypodermal**
b) Ovules have fairly large nucellus
c) sporogenous cell is epidermal
d) ovules have single layer of nucellus tissue
12. Which of the following represent megagametophyte
- a) Ovule
b) **Embryo sac**
c) Nucellus
d) Endosperm
13. In *Haplopappus gracilis*, number of chromosomes in cells of nucellus is 4. What will be the chromosome number in Primary endosperm cell?
- a) 8 b) **12** c) 6 d) 2
14. Transmitting tissue is found in
- a) Micropylar region of ovule
b) Pollen tube wall
c) **Stylar region of gynoecium**
d) Integument
15. The scar left by funiculus in the seed is
- a) tegmen
b) radicle
c) epicotyl
d) **hilum**
16. A Plant called X possesses small flower with reduced perianth and versatile anther. The probable agent for pollination would be
- a) water
b) **air**
c) butterflies
d) beetles
17. Consider the following statement(s)
- i) In Protandrous flowers pistil matures earlier
ii) In Protogynous flowers pistil matures earlier
iii) Herkogamy is noticed in unisexual flowers
iv) Distyly is present in *Primula*
- a) i and ii are correct
b) **ii and iv are correct**
c) ii and iii are correct
d) i and iv are correct
18. Coelorrhiza is found in
- a) **Paddy**
b) Bean
c) Pea
d) *Tridax*
19. Parthenocarpic fruits lack
- a) Endocarp
b) Epicarp
c) Mesocarp
d) **seed**
20. In majority of plants pollen is liberated at

- a) 1 celled stage
c) 3 celled stage
- b) **2 celled stage**
d) 4 celled stage

2.CLASSICAL GENETICS

I. Choose the correct answer

- Extra nuclear inheritance is a consequence of presence of genes in
 - Mitochondria and chloroplasts**
 - Endoplasmic reticulum and mitochondria
 - Ribosomes and chloroplast
 - Lysosomes and ribosomes
- In order to find out the different types of gametes produced by a pea plant having the genotype AaBb, it should be crossed to a plant with the genotype
 - aaBB
 - AaBB
 - AABB
 - aabb**
- How many different kinds of gametes will be produced by a plant having the genotype AABbCC?
 - Three
 - Four**
 - Nine
 - Two
- Which one of the following is an example of polygenic inheritance?
 - Flower colour in *Mirabilis Jalapa*
 - Production of male honey bee
 - Pod shape in garden pea
 - Skin Colour in humans**
- In Mendel's experiments with garden pea, round seed shape (RR) was dominant over wrinkled seeds (rr), yellow cotyledon (YY) was dominant over green cotyledon (yy). What are the expected phenotypes in the F₂ generation of the cross RRYYY x rryy?
 - Only round seeds with green cotyledons
 - Only wrinkled seeds with yellow cotyledons
 - Only wrinkled seeds with green cotyledons
 - Round seeds with yellow cotyledons and wrinkled seeds with yellow cotyledons**
- Test cross involves
 - Crossing between two genotypes with recessive trait
 - Crossing between two F₁ hybrids
 - Crossing the F₁ hybrid with a double recessive genotype**
 - Crossing between two genotypes with dominant trait
- In pea plants, yellow seeds are dominant to green. If a heterozygous yellow seed plant is crossed with a green seeded plant, what ratio of yellow and green seeded plants would you expect in F₁ generation?
 - 9:1
 - 1:3
 - 3:1
 - 50:50**
- The genotype of a plant showing the dominant phenotype can be determined by
 - Back cross
 - Test cross**
 - Dihybrid cross
 - Pedigree analysis
- Select the correct statement from the ones given below with respect to dihybrid cross
 - Tightly linked genes on the same chromosomes show very few combinations**

- b) Tightly linked genes on the same chromosomes show higher combinations
c) Genes far apart on the same chromosomes show very few recombinations
d) Genes loosely linked on the same chromosomes show similar recombinations as the tightly linked ones
10. Which Mendelian idea is depicted by a cross in which the F₁ generation resembles both the parents
a) Incomplete dominance
b) Law of dominance
c) Inheritance of one gene
d) **Co-dominance**
11. Fruit colour in squash is an example of
a) Recessive epistasis
b) **Dominant epistasis**
c) Complementary genes
d) Inhibitory genes
12. In his classic experiments on Pea plants, Mendel did not use
a) Flowering position
b) Seed colour
c) **Pod length**
d) Seed shape
13. The epistatic effect, in which the dihybrid cross 9:3:3:1 between AaBb Aabb is modified as
a) Dominance of one allele on another allele of both loci
b) **Interaction between two alleles of different loci**
c) Dominance of one allele to another alleles of same loci
d) Interaction between two alleles of some loci
14. In a test cross involving F₁ dihybrid flies, more parental type offspring were produced than the recombination type offspring. This indicates
a) The two genes are located on two different chromosomes
b) Chromosomes failed to separate during meiosis
c) **The two genes are linked and present on the some chromosome**
d) Both of the characters are controlled by more than one gene
15. The genes controlling the seven pea characters studied by Mendel are known to be located on how many different chromosomes?
a) **Seven**
b) Six
c) Five
d) Four
16. Which of the following explains how progeny can possess the combinations of traits that none of the parent possessed?
a) Law of segregation
b) Chromosome theory
c) **Law of independent assortment**
d) Polygenic inheritance
17. "Gametes are never hybrid". This is a statement of
a) Law of dominance
b) Law of independent assortment
c) **Law of segregation**
d) Law of random fertilization
18. Gene which suppresses other genes activity but does not lie on the same locus is called as
a) **Epistatic**
b) Supplement only
c) Hypostatic
d) Codominant
19. Pure tall plants are crossed with pure dwarf plants. In the F₁ generation, all plants were tall. These tall plants of F₁ generation were selfed and the ratio of tall to dwarf plants obtained was 3:1. This is called
a) **Dominance**
b) Inheritance
c) Codominance
d) Heredity

20. The dominant epistasis ratio is
 a) 9:3:3:1
 b) **12:3:1**
 c) 9:3:4
 d) 9:6:1
21. Select the period for Mendel's hybridization experiments
 a) **1856 - 1863**
 b) 1850 - 1870
 c) 1857 - 1869
 d) 1870 - 1877
22. Among the following characters which one was not considered by Mendel in his experimentation pea?
 a) Stem – Tall or dwarf
 b) **Trichomal glandular or non-glandular**
 c) Seed – Green or yellow
 d) Pod – Inflated or constricted

3. CHROMOSOMAL BASIS OF INHERITANCE

I. Choose the correct answer:

1. An allohexaploidy contains
 a) Six different genomes
 b) Six copies of three different genomes
 c) **Two copies of three different genomes**
 d) Six copies of one genome
2. The A and B genes are 10 cM apart on a chromosome. If an AB/ab heterozygote is testcrossed to ab/ab, how many of each progeny class would you expect out of 100 total progeny?
 a) 25 AB, 25 ab, 25 Ab, 25 aB
 b) 10 AB, 10 ab
 c) 45 AB, 45 ab
 d) **45 AB, 45 ab, 5 Ab, 5 aB**
3. Match list I with list II

List I	List II
A. A pair of chromosomes extra with diploid	i) monosomy
B. One chromosome extra to the diploid	ii) tetrasomy
C. One chromosome loses from diploid	iii) trisomy
D. Two individual chromosomes lose from diploid	iv) double monosomy

- a) A-i, B-iii, C-ii, D-iv
 b) A-ii, B-iii, C-iv, D-i
 c) **A-ii, B-iii, C-i, D-iv**
 d) A-iii, B-ii, C-i, D-iv
4. Which of the following sentences are correct?
 1. The offspring exhibit only parental combinations due to incomplete linkage
 2. The linked genes exhibit some crossing over in complete linkage
 3. The separation of two linked genes are possible in incomplete linkage
 4. Crossing over is absent in complete linkage
 a) 1 and 2
 b) 2 and 3
 c) **3 and 4**
 d) 1 and 4
5. Accurate mapping of genes can be done by three point test cross because increases
 a) Possibility of single cross over
 b) **Possibility of double cross over**
 c) Possibility of multiple cross over
 d) Possibility of recombination frequency
6. Due to incomplete linkage in maize, the ratio of parental and recombinants are
 a) 50:50
 b) **7:1:1:7**

d. making artificial limbs, diagnostic instruments such as ECG, EEG etc.,

5. Consider the following statements:

- I. Recombinant DNA technology is popularly known as genetic engineering is a stream of biotechnology which deals with the manipulation of genetic materials by man invitro
- II. pBR322 is the first artificial cloning vector developed in 1977 by Boliver and Rodriguez from E.coli plasmid
- III. Restriction enzymes belongs to a class of enzymes called nucleases.

Choose the correct option regarding above statements

- a. I & II
- b. I & III
- c. II & III
- d. **I,II & III**

6. The process of recombinant DNA technology has the following steps

- I. amplication of the gene
- II. Insertion of recombinant DNA into the host cells
- III. Cutting of DNA at specific location using restriction enzyme .
- IV. Isolation of genetic material (DNA)

Pick out the correct sequence of step for recombinant DNA technology.

- a. II, III, IV, I
- b. IV, II, III, I
- c. I, II, III, IV
- d. **IV, III, I, II**

7. Which one of the following palindromic base sequence in DNA can be easily cut at about the middle by some particular restriction enzymes?

- a. 5` CGTTCG 3` 3` ATCGTA 5`
- b. 5` GATATG 3` 3` CTAATA 5`
- c. **5` GAATTC 3` 3` CTTAAG 5`**
- d. 5` CACGTA 3` 3` CTCAGT 5`

8. pBR 322, BR stands for

- a. Plasmid Bacterial Recombination
- b. Plasmid Bacterial Replication
- c. **Plasmid Boliver and Rodriguez**
- d. Plasmid Baltimore and Rodriguez

9. Which of the following one is used as a Biosensors?

- a. Electrophoresis
- b. **Bioreactors**
- c. Vectors
- d. Electroporation

10. Match the following :

Column A	Column B
1. Exonuclease	a. add or remove phosphate
2. Endonuclease	b. binding the DNA fragments
3. Alkaline Phosphatase	c. cut the DNA at terminus
4. Ligase	d. cut the DNA at middle

- 1 2 3 4
- A) a b c d
- B) c d b a
- C) a c b d
- D) **c d a b**

11. In which techniques Ethidium Bromide is used?

- a. Southern Blotting techniques
- b. Western Blotting techniques

c. Polymerase Chain Reaction

d. Agrose Gel Electroporosis

12. Assertion : *Agrobacterium tumifaciens* is popular in genetic engineering because this bacterium is associated with the root nodules of all cereals and pulse crops

Reason: A gene incorporated in the bacterial chromosomal genome gets automatically transferred to the cross with which bacterium is associated.

- a) Both assertion and reason are true. But reason is correct explanation of assertion.
 - b) Both assertion and reason are true. But reason is not correct explanation of assertion.
 - c) Assertion is true, but reason is false.
 - d) **Assertion is false, but reason is true.**
 - e) Both assertion and reason are false.
13. Which one of the following is not correct statement.
- a) **Ti plasmid causes the bunched top disease**
 - b) Multiple cloning site is known as Polylinker
 - c) Non viral method transfection of Nucleic acid in cell
 - d) Polylactic acid is a kind of biodegradable and bioactive thermoplastic.
14. An analysis of chromosomal DNA using the southern hybridisation technique does not use
- a) Electrophoresis
 - b) Blotting
 - c) Autoradiography
 - d) **Polymerase Chain Reaction**
15. An antibiotic gene in a vector usually helps in the selection of
- a) **Competent cells**
 - b) Transformed cells
 - c) Recombinant cells
 - d) None of the above
16. Some of the characteristics of Bt cotton are
- a) Long fibre and resistant to aphids
 - b) Medium yield, long fibre and resistant to beetle pests
 - c) high yield and production of toxic protein crystals which kill dipteran pests.
 - d) **High yield and resistant to boll worms**

5. PLANT TISSUE CULTURE

I. Choose the correct answer:

1. Totipotency refers to
- a) **capacity to generate genetically identical plants.**
 - b) capacity to generate a whole plant from any plant cell / explant.
 - c) capacity to generate hybrid protoplasts.
 - d) recovery of healthy plants from diseased plants.
2. Micro propagation involves
- a) vegetative multiplication of plants by using micro-organisms.

- b) **vegetative multiplication of plants by using small explants.**
- c) vegetative multiplication of plants by using microspores.
- d) Non-vegetative multiplication of plants by using microspores and megaspores.

3. Match the following

Column A

Column B

- | | |
|----------------------|--|
| 1) Totipotency | A) Reversion of mature cells into meristem |
| 2) Dedifferentiation | B) Biochemical and structural changes of cells |
| 3) Explant | C) Properties of living cells develops into entire plant |
| 4) Differentiation | D) Selected plant tissue transferred to culture medium |

1 2 3 4

- a) **C A D B**
- b) A C B D
- c) B A D C
- d) D B C A

4. The time duration for sterilization process by using autoclave is _____ minutes and the temperature is _____

- | | |
|--------------------------------|---------------------------------------|
| a) 10 to 30 minutes and 125° C | b) 15 to 30 minutes and 121° C |
| c) 15 to 20 minutes and 125° C | d) 10 to 20 minutes and 121° C |

5. Which of the following statement is correct

- a) Agar is not extracted from marine algae such as seaweeds.
- b) **Callus undergoes differentiation and produces somatic embryoids.**
- c) Surface sterilization of explants is done by using mercuric bromide
- d) PH of the culture medium is 5.0 to 6.0

6. Select the incorrect statement from given statement

- a) A tonic used for cardiac arrest is obtained from *Digitalis purpuria*
- b) Medicine used to treat Rheumatic pain is extracted from *Capsicum annum*
- c) An anti malarial drug is isolated from *Cinchona officinalis*.
- d) **Anti-carcinogenic property is not seen in *Catharanthus roseus*.**

7. Virus free plants are developed from

- a) Organ culture
- b) **Meristem culture**
- c) Protoplast culture
- d) Cell suspension culture

8. The prevention of large scale loss of biological integrity

- a) Biopatent
- b) Bioethics
- c) **Biosafety**
- d) Biofuel

9. Cryopreservation means it is a process to preserve plant cells, tissues or organs

- a) at very low temperature by using ether.
- b) at very high temperature by using liquid nitrogen
- c) **at very low temperature of -196 by using liquid nitrogen**
- d) at very low temperature by using liquid nitrogen

10. Solidifying agent used in plant tissue culture is

- a) Nicotinic acid
- b) Cobaltous chloride
- c) EDTA
- d) **Agar**

6. PRINCIPLES OF ECOLOGY

I. Choose the correct answer:

1. Arrange the correct sequence of ecological hierarchy starting from lower to higher level.
 - a) Individual organism → Population Landscape → Ecosystem
 - b) Landscape → Ecosystem → Biome → Biosphere
 - c) **community → Ecosystem → Landscape → Biome**
 - d) Population → organism → Biome → Landscape
2. Ecology is the study of an individual species is called
 - i) Community ecology
 - ii) Autecology
 - iii) Species ecology
 - iv) Synecology

- a) i only
 c) i and iv only
- b) ii only
 d) **ii and iii only**
3. A specific place in an ecosystem, where an organism lives and performs its functions is
 a) habitat
 c) landscape
 b) **niche**
 d) biome
4. Read the given statements and select the correct option.
 i) Hydrophytes possess aerenchyma to support themselves in water.
 ii) Seeds of Viscum are positively photoblastic as they germinate only in presence of light.
 iii) Hygroscopic water is the only soil water available to roots of plant growing in soil as it is present inside the micropores.
 iv) High temperature reduces use of water and solute absorption by roots.
 a) i, ii, and iii only
 c) ii and iii only
 b) ii, iii and iv
 d) **i and ii only**
5. Which of the given plant produces cardiac glycosides?
 a) **Calotropis**
 c) Nepenthes
 b) Acacia
 d) Utricularia
6. Read the given statements and select the correct option.
 i) Loamy soil is best suited for plant growth as it contains a mixture of silt, sand and clay.
 ii) The process of humification is slow in case of organic remains containing a large amount of lignin and cellulose.
 iii) Capillary water is the only water available to plant roots as it is present inside the micropores.
 iv) Leaves of shade plant have more total chlorophyll per reaction centre, low ratio of chl a and chl b are usually thinner leaves.
 a) i, ii and iii only
 c) **i, ii and iv only**
 b) ii, iii and iv only
 d) ii and iii only
7. Read the given statements and select the correct option.
 Statement A : Cattle do not graze on weeds of Calotropis.
 Statement B : Calotropis have thorns and spines, as defense against herbivores.
 a) Both statements A and B are incorrect.
 b) **Statement A is correct but statement B is incorrect.**
 c) Both statements A and B are correct but statement B is not the correct explanation of statement A.
 d) Both statements A and B are correct and statement B is the correct explanation of statement A.
8. In soil water available for plants is
 a) gravitational water
 c) **capillary water**
 b) chemically bound water
 d) hygroscopic water
9. Read the following statements and fill up the blanks with correct option.
 i) Total soil water content in soil is called _____
 ii) Soil water not available to plants is called _____
 iii) Soil water available to plants is called _____

	(i)	(ii)	(iii)
(a)	Holard	Echard	Chresard

(b)	Echard	Holard	Chresard
(c)	Chresard	Echard	Holard
(d)	Holard	Chresard	Echard

10. Column I represent the size of the soil particles and Column II represents type of soil components. Which of the following is correct match for the Column I and Column II

- | | |
|------------------------|-----------------|
| Column – I | Column - II |
| I). 0.2 to 2.00 mm | i) Slit soil |
| II) Less than 0.002 mm | ii) Clayey soil |
| III) 0.002 to 0.02 mm | iii) Sandy soil |
| IV) 0.002 to 0.2 mm | iv) Loamy soil |

	I	II	III	IV
a)	ii	iii	iv	I
b)	iv	i	iii	II
c)	iii	ii	i	iv
d)	None of these			

11. The plant of this group are adapted to live partly in water and partly above substratum and free from water

- | | |
|----------------|----------------------|
| a) Xerophytes | b) Mesophytes |
| c) Hydrophytes | d) Halophytes |
- 12 . Identify the A, B, C and D in the given table

Interaction	Effects on species X	Effects on species Y
Mutualism	A	(+)
B	(+)	(-)
Competition	(-)	C
D	(-)	0

	A	B	C	D
a)	(+)	Parasitism	(-)	Amensalism
b)	(-)	Mutalism	(+)	Competition
c)	(+)	Competition	(0)	Mutalism
d)	(0)	Amensalism	(+)	Parasitism

13. Ophrys an orchid resembling the female of an insect so as to able to get pollinated is due to phenomenon of

- | | |
|-------------------|--------------------------|
| a) Myrmecophily | b) Ecological equivalent |
| c) Mimicry | d) None of these |
14. A free living nitrogen fixing cyanobacterium which can also form symbiotic association with the water fern Azolla
- | | |
|--------------|--------------------|
| a) Nostoc | b) Anabaena |
| c) chlorella | d) Rhizobium |
15. Pedogenesis refers to
- | | |
|------------|----------|
| a) Fossils | b) Water |
|------------|----------|

- c) Population d) **Soil**
16. Mycorrhiza promotes plant growth by
 a) Serving as a plant growth regulators
b) Absorbing inorganic ions from soil
 c) Helping the plant in utilizing atmospheric nitrogen
 d) Protecting the plant from infection
17. Which of the following plant has a non-succulent xerophytic and thick leathery leaves with waxy coating
 a) Bryophyllum b) **Ruscus**
 c) Nerium d) Calotropis
18. In a fresh water environment like pond, rooted autotrophs are
a) Nymphaea and typha b) Ceratophyllum and Utricularia
 c) Wolffia and pistia d) Azolla and lemna
19. Match the following and choose the correct combination from the options given below:

Column I (Interaction)	Column II (Examples)
I. Mutualism	i). Trichoderma and Penicillium
II. Commensalism	ii). Balanophora, Orobanche
III. Parasitism	iii). Orchids and Ferns
IV. Predation	iv). Lichen and Mycorrhiza
V. Amensalism	v). Nepenthes and Diaonaea

	I	II	III	IV	V
a)	i	ii	iii	iv	v
b)	ii	iii	iv	v	i
c)	iii	iv	v	i	ii
d)	iv	iii	ii	v	i

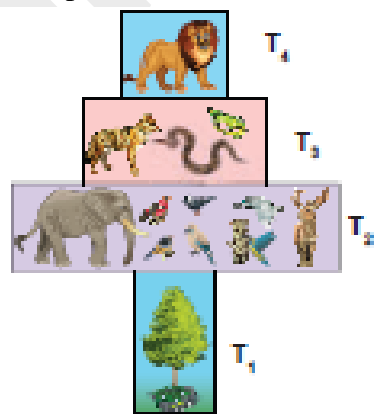
20. Strong, sharp spines that get attached to animal's feet are found in the fruits of
 a) Argemone b) **Ecballium**
 c) Heritier d) Crossandra
21. Sticky glands of Boerhaavia and Cleome support
 a) Anemochory b) **Zoochory**
 c) Autochory d) Hydrochory

7.ECOSYSTEM

I. Choose the correct answer

1. Which of the following is not a abiotic component of the ecosystem?
 a) **Bacteria** b) Humus
 c) Organic compounds d) Inorganic compounds
2. Which of the following is / are not a natural ecosystem?
 a) Forest ecosystem b) **Rice field**
 c) Grassland ecosystem d) Desert ecosystem
3. Pond is a type of

- a) forest ecosystem
 - b) grassland ecosystem
 - c) marine ecosystem
 - d) **fresh water ecosystem**
4. Pond ecosystem is
- a) not self sufficient and self regulating
 - b) partially self sufficient and self regulating
 - c) self sufficient and not self regulating
 - d) **self sufficient and self regulating**
5. Profundal zone is predominated by heterotrophs in a pond ecosystem, because of
- a) with effective light penetration
 - b) **no effective light penetration**
 - c) complete absence of light
 - d) a and b
6. Solar energy used by green plants for photosynthesis is only
- a) 2 – 8%
 - b) **2 – 10%**
 - c) 3 – 10%
 - d) 2 – 9%
7. Which of the following ecosystem has the highest primary productivity?
- a) Pond ecosystem
 - b) Lake ecosystem
 - c) Grassland ecosystem
 - d) **Forest ecosystem**
8. Ecosystem consists of
- a) decomposers
 - b) producers
 - c) consumers
 - d) **all of the above**
9. Which one is in descending order of a food chain
- a) Producers → Secondary consumers → Primary consumers → Tertiary consumers
 - b) Tertiary consumers → Primary consumers → Secondary consumers → Producers
 - c) **Tertiary consumers → Secondary consumers → Primary consumers → Producers**
 - d) Tertiary consumers → Producers → Primary consumers → Secondary consumers
10. Significance of food web is / are
- a) it does not maintain stability in nature
 - b) it shows patterns of energy transfer
 - c) it explains species interaction
 - d) **b and c**
11. The following diagram represents



- a) pyramid of number in a grassland ecosystem
 - b) pyramid of number in a pond ecosystem
 - c) **pyramid of number in a forest ecosystem**
 - d) pyramid of biomass in a pond ecosystem
12. Which of the following is / are not the mechanism of decomposition
- a) Eluviation
 - b) Catabolism

- | | | | | |
|----|-----------|----------|------------|-----------|
| | I | II | III | IV |
| a) | iv | iii | ii | i |
| b) | ii | i | iii | iv |
| c) | ii | iv | i | iii |
| d) | i | iii | iv | ii |

15. A wheat variety, Atlas 66 which has been used as a donor for improving cultivated wheat, which is rich in

- | | |
|--------------------|------------------|
| a) iron | b) carbohydrates |
| c) proteins | d) vitamins |

16. Which one of the following correct matches with its resistance to a disease?

Variety	Resistance to disease
a) Pusa Komal	Bacterial blight
b) Pusa Sadabahar	White rust
c) Pusa Shubhra	Chilli mosaic virus
d) Brassica	Pusa swarnim

17. Which of the following is incorrectly paired?

- | | | |
|----------------------|---|-----------------|
| a) Wheat | - | Himgiri |
| b) Milch breed | - | Sahiwal |
| c) Rice | - | Ratna |
| d) Pusa Komal | - | Brassica |

18. Match list I with list II

- | | |
|-------------------------------|-----------------------------------|
| List I | List II |
| Biofertilizer | Organisms |
| i) Free living N ₂ | a) Aspergillus |
| ii) Symbiotic N ₂ | b) Amanita |
| iii) P Solubilizing | c) Anabaena azollae |
| iv) P Mobilizing | d) Azotobactor |
| a. i-c, ii-a, iii-b, iv-d | b. i-d, ii-c, iii-a, iv-b. |
| c. i-a, ii-c, iii-b, iv-d | c. i-b, ii-a, iii-d, iv-c. |

10. ECONOMICALLY USEFUL PLANTS AND ENTREPRENEURIAL BOTANY

I. Choose the Correct Answer

1. Consider the following statements and choose the right option.

- i) Cereals are members of grass family.

- ii) Most of the food grains come from monocotyledon.
- a) (i) is correct and (ii) is wrong b) **Both (i) and (ii) are correct**
c) (i) is wrong and (ii) is correct d) Both (i) and (ii) are wrong
2. Assertion: Vegetables are important part of healthy eating.
Reason: Vegetables are succulent structures of plants with pleasant aroma and flavours.
- a) **Assertion is correct, Reason is wrong**
b) Assertion is wrong, Reason is correct
c) Both are correct and reason is the correct explanation for assertion.
d) Both are correct and reason is not the correct explanation for assertion.
3. Groundnut is native of _____
- a) Philippines b) India
c) North America d) **Brazil**
4. Statement A: Coffee contains caffeine
Statement B: Drinking coffee enhances cancer
- a) **A is correct, B is wrong** b) A and B – Both are correct
c) A is wrong, B is correct d) A and B – Both are wrong
5. *Tectona grandis* is coming under family
- a) **Lamiaceae** b) Fabaceae
c) Dipterocarpaceae d) Ebenaceae
6. *Tamarindus indica* is indigenous to
- a) **Tropical African region** b) South India, Sri Lanka
c) South America, Greece d) India alone
7. New world species of cotton
- a) *Gossypium arboreum* b) *G. herbaceum*
c) Both a and b d) ***G. barbadense***
8. Assertion: Turmeric fights various kinds of cancer
Reason: Curcumin is an anti-oxidant present in turmeric
- a) Assertion is correct, Reason is wrong
b) Assertion is wrong, Reason is correct
c) **Both are correct**
d) Both are wrong
9. Find out the correctly matched pair.

- a) Rubber Shorea robusta
 c) Timber Cyperus papyrus
- b) **Dye Lawsonia inermis**
 d) Pulp Hevea brasiliensis

10. Observe the following statements and pick out the right option from the following:

Statement I – Perfumes are manufactured from essential oils.

Statement II – Essential oils are formed at different parts of the plants.

- a) Statement I is correct
 c) **Both statements are correct**
- b) Statement II is correct
 d) Both statements are wrong

11. Observe the following statements and pick out the right option from the following:

Statement I: The drug sources of Siddha include plants, animal parts, ores and minerals.

Statement II: Minerals are used for preparing drugs with long shelf-life.

- a) Statement I is correct
 c) Both statements are correct
- b) **Statement II is correct**
 d) Both statements are wrong

12. The active principle trans-tetra hydro canabial is present in

- a) Opium
 c) **Marijuana**
- b) Curcuma
 d) Andrographis

13. Which one of the following matches is correct?

- a) Palmyra - Native of Brazil
 b) Saccharun - Abundant in Kanyakumari
 c) **Steveocide - Natural sweetener**
 d) Palmyra sap - Fermented to give ethanol

14. The only cereal that has originated and domesticated from the New world.

- a) *Oryza sativa*
 c) *Triticum durum*
- b) *Triticum asetumn*
 d) *Zea mays*

12th Standard – BIO ZOOLOGY

NEW BOOK

1.REPRODUCTION IN ORGANISMS

I. Choose the Correct Answer

- In which type of parthenogenesis are only males produced?
 - Arrhenotoky**
 - Thelytoky
 - Amphitoky
 - Both a and b
- Animals giving birth to young ones:
 - Oviparous
 - Viviparous**
 - Oviviviparous
 - Both a and b
- The mode of reproduction in bacteria is by

- a) Formation of gametes
 c) **Conjugation**
- b) Endospore formation
 d) Zoospore formation

4. In which mode of reproduction variations are seen

- a) Asexual
 c) **Sexual**
- b) Parthenogenesis
 d) Both a and b

5. Assertion and reasoning questions:

In each of the following questions there are two statements. One is assertion (A) and other is reasoning (R). Mark the correct answer as

- A. If both A and R are true and R is correct explanation for A
 B. If both A and R are true but R is not the correct explanation for A
 C. If A is true but R is false
 D. If both A and R are false.

I. Assertion: In bee society, all the members are diploid except drones.

Reason: Drones are produced by parthenogenesis.

- A B C D

II. Assertion: Offsprings produced by asexual reproduction are genetically identical to the parent.

Reason: Asexual reproduction involves only mitosis and no meiosis.

- A B C D

III. Assertion: Viviparous animals give better protection to their offsprings.

Reason: They lay their eggs in the safe places of the environment.

- A B C D

2. HUMAN REPRODUCTION

I. Choose the correct answer

- The mature sperms are stored in the
 - Seminiferous tubules
 - Epididymis**
 - Vas deferens
 - Seminal vesicle
- The male sex hormone testosterone is secreted from
 - Sertoli cells
 - Leydig cell**
 - Epididymis
 - Prostate gland
- The glandular accessory organ which produces the largest proportion of semen is
 - Seminal vesicle**
 - Bulbourethral gland
 - Prostate gland
 - Mucous gland
- The male homologue of the female clitoris is
 - Scrotum
 - Penis**
 - Urethra
 - Testis
- The site of embryo implantation is the
 - Uterus**
 - Peritoneal cavity
 - Vagina
 - Fallopian tube
- The foetal membrane that forms the basis of the umbilical cord is
 - Allantois**
 - Amnion
 - Chorion
 - Yolk sac
- The most important hormone in initiating and maintaining lactation after birth is

- a. Oestrogen
c. **Prolactin**
8. Mammalian egg is
a. Mesolecithal and non cleidoic
c. **Alecithal and non cleidoic**
9. The process which the sperm undergoes before penetrating the ovum is
a. Spermiation
c. Spermiogenesis
b. FSH
d. Oxytocin
10. The milk secreted by the mammary glands soon after child birth is called
a. Mucous
c. Lactose
b. Microlecithal and non cleidoic
d. Alecithal and cleidoic
11. Colostrum is rich in
a. Ig E
c. Ig D
b. Cortical reaction
d. **Capacitation**
12. The milk secreted by the mammary glands soon after child birth is called
a. Mucous
c. Lactose
b. **Colostrum**
d. Sucrose
13. Colostrum is rich in
a. Ig E
c. Ig D
b. **Ig A**
d. Ig M
14. The Androgen Binding Protein (ABP) is produced by
a. Leydig cells
c. **Sertoli cells**
b. Hypothalamus
d. Pituitary gland
15. Which one of the following menstrual irregularities is correctly matched?
a. Menorrhagia – excessive menstruation
b. **Amenorrhoea - absence of menstruation**
c. Dysmenorrhoea - irregularity of menstruation
d. Oligomenorrhoea – painful menstruation
16. Find the wrongly matched pair
a. Bleeding phase - fall in oestrogen and progesterone
b. Follicular phase - rise in oestrogen
c. **Luteal phase - rise in FSH level**
d. Ovulatory phase - LH surge

Answer the following type of questions

Assertion (A) and Reason (R)

- a. A and R are true, R is the correct explanation of A
b. A and R are true, R is not the correct explanation of A
c. A is true, R is false
d. Both A and R are false
15. A – In human male, testes are extra abdominal and lie in scrotal sacs.
R – Scrotum acts as thermoregulator and keeps temperature lower by 2°C for normal sperm production .
(a) **A and R are true, R is the correct explanation of A**
16. A – Ovulation is the release of ovum from the Graafian follicle.
R – It occurs during the follicular phase of the menstrual cycle.
(c) **A is true, R is false**
17. A – Head of the sperm consists of acrosome and mitochondria.
R – Acrosome contains spiral rows of mitochondria.
(d) **Both A and R are false**

3.REPRODUCTIVE HEALTH**I. Choose the correct answer:**

- Which of the following is correct regarding HIV, hepatitis B, gonorrhoea and trichomoniasis?
 - Gonorrhoea is a STD whereas others are not.
 - Trichomoniasis is a viral disease whereas others are bacterial.
 - HIV is a pathogen whereas others are diseases.**
 - Hepatitis B is eradicated completely whereas others are not.
- Which one of the following groups includes sexually transmitted diseases caused by bacteria only?
 - Syphilis, gonorrhoea and candidiasis
 - Syphilis, chlamydiasis and gonorrhoea**
 - Syphilis, gonorrhoea and trichomoniasis
 - Syphilis, trichomoniasis and pediculosis
- Identify the correct statements from the following
 - Chlamydiasis is a viral disease.
 - Gonorrhoea is caused by a spirochaete bacterium, Treponema palladium.
 - The incubation period for syphilis is 2 to 14 days in males and 7 to 21 days in females.
 - Both syphilis and gonorrhoea are easily cured with antibiotics.**
- A contraceptive pill prevents ovulation by
 - blocking fallopian tube
 - inhibiting release of FSH and LH**
 - stimulating release of FSH and LH
 - causing immediate degeneration of released ovum.
- The approach which does not give the defined action of contraceptive is

(a)	Hormonal contraceptive	Prevents entry of sperms, prevent ovulation and fertilization
(b)	Vasectomy	Prevents spermatogenesis
(c)	Barrier method	Prevents fertilization
(d)	Intra uterine device	Increases phagocytosis of sperms, suppresses sperm motility and fertilizing capacity of sperms

- Read the given statements and select the correct option.

Statement 1: Diaphragms, cervical caps and vaults are made of rubber and are inserted into the female reproductive tract to cover the cervix before coitus.

Statement 2: They are chemical barriers of conception and are reusable.

- Both statements 1 and 2 are correct and statement 2 is the correct explanation of statement 1.
 - Both statements 1 and 2 are correct but statement 2 is not the correct explanation of statement 1.
 - Statement 1 is correct but statement 2 is incorrect.**
 - Both statements 1 and 2 are incorrect.
- Match column I with column II and select the correct option from the codes given below.

Column I	Column II
A. Copper releasing IUD	(i) LNG-20
B. Hormone releasing	(ii) Lippes loop IUD
C. Non medicated IUD	(iii) Saheli

D. Mini pills

(iv) Multiload-375

(a) A-(iv), B-(ii), C-(i), D-(iii)

(b) A-(iv), B-(i), C-(iii), D-(ii)

(c) A-(i), B-(iv), C-(ii), D-(iii)

(d) **A-(iv), B-(i), C-(ii), D-(iii)**

8. Select the incorrect action of hormonal contraceptive pills from the following

(a) **Inhibition of spermatogenesis.**

(b) Inhibition of ovulation.

(c) Changes in cervical mucus impairing its ability to allow passage and transport of sperms.

(d) Alteration in uterine endometrium to make it unsuitable for implantation.

4. PRINCIPLES OF INHERITANCE AND VARIATION

I. Choose the correct answer

1. Haemophilia is more common in males because it is a

- a) Recessive character carried by Y-chromosome
- b) Dominant character carried by Y-chromosome
- c) Dominant trait carried by X-chromosome
- d) **Recessive trait carried by X-chromosome**

2. ABO blood group in man is controlled by

- a) **Multiple alleles**
- b) Lethal genes
- c) Sex linked genes
- d) Y-linked genes

3. Three children of a family have blood groups A, AB and B. What could be the genotypes of their parents?

- a) $I^A I^B$ and ii
- b) **$I^A I^O$ and $I^B I^O$**
- c) $I^B I^B$ and $I^A I^A$
- d) $I^A I^A$ and ii

4. Which of the following is not correct?

- a) Three or more alleles of a trait in the population are called multiple alleles.
- b) A normal gene undergoes mutations to form many alleles
- c) **Multiple alleles map at different loci of a chromosome**
- d) A diploid organism has only two alleles out of many in the population

5. Which of the following phenotypes in the progeny are possible from the parental combination AxB?

- a) A and B only
- b) A,B and AB only
- c) AB only
- d) **A,B,AB and O**

6. Which of the following phenotypes is not possible in the progeny of the parental genotypic combination $I^A I^O \times I^A I^B$?

- a) AB
- b) **O**
- c) A
- d) B

7. Which of the following is true about Rh factor in the offspring of a parental combination DdXDd (both Rh positive)?

- a) All will be Rh-positive
- b) Half will be Rh positive
- c) About $\frac{3}{4}$ will be Rh negative
- d) **About one fourth will be Rh negative**

8. What can be the blood group of offspring when both parents have AB blood group?

- a) AB only
- b) **A, B and AB**

7. Which of the following is the correct sequence of event with reference to the central dogma?
(a) Transcription, Translation, Replication
(b) Transcription, Replication, Translation
(c) Duplication, Translation, Transcription
(d) **Replication, Transcription, Translation**
8. Which of the following statements about DNA replication is not correct?
(a) Unwinding of DNA molecule occurs as hydrogen bonds break.
(b) **Replication occurs as each base is paired with another exactly like it.**
(c) Process is known as semi conservative replication because one old strand is conserved in the new molecule.
(d) Complementary base pairs are held together with hydrogen bonds.
9. Which of the following statements is not true about DNA replication in eukaryotes?
(a) Replication begins at a single origin of replication.
(b) Replication is bidirectional from the origins.
(c) Replication occurs at about 1 million base pairs per minute.
(d) **There are numerous different bacterial chromosomes, with replication occurring in each at the same time.**
10. The first codon to be deciphered was _____ which codes for _____.
(a) AAA, proline
(b) GGG, alanine
(c) **UUU, Phenylalanine**
(d) TTT, arginine
11. Meselson and Stahl's experiment proved
(a) Transduction
(b) Transformation
(c) DNA is the genetic material
(d) **Semi-conservative nature of DNA replication**
12. Ribosomes are composed of two subunits; the smaller subunit of a ribosome has a binding site for _____ and the larger subunit has two binding sites for two _____. **Ans (mRNA, tRNA)**
13. An operon is a:
(a) Protein that suppresses gene expression
(b) Protein that accelerates gene expression
(c) **Cluster of structural genes with related function**
(d) Gene that switched other genes on or off
14. When lactose is present in the culture medium:
(a) Transcription of lac y, lac z, lac a genes occurs.
(b) Repressor is unable to bind to the operator.
(c) Repressor is able to bind to the operator.
(d) **Both (a) and (b) are correct.**

6.EVOLUTION

I. Choose the correct answer:

1. The first life on earth originated
a) in air
b) on land
c) **in water**
d) on mountain
- 2) Who published the book "Origin of species by Natural Selection" in 1859?

I. Choose the correct answer

1. A 30 year old woman has bloody diarrhoea for the past 14 hours, which one of the following organisms is likely to cause this illness?
 - a) *Streptococcus pyogenes*
 - b) *Clostridium difficile*
 - c) *Shigella dysenteriae*
 - d) *Salmonella enteritidis*
2. Exo-erythrocytic schizogony of Plasmodium takes place in -----
 - a) RBC
 - b) Leucocytes
 - c) Stomach
 - d) **Liver**
3. The sporozoites of *Plasmodium vivax* are formed from -----
 - a) Gametocytes
 - b) Sporoblasts
 - c) **Oocysts**
 - d) Spores
4. Amphetamines are stimulants of the CNS, whereas barbiturates are ----
 - a) CNS stimulant
 - b) both a and b
 - c) hallucinogenic
 - d) **CNS depressants**
5. Choose the correctly match pair.
 - a) **Amphetamines - Stimulant**
 - b) LSD - Narcotic
 - c) Heroin - Psychotropic
 - d) Benzodiazepine - Pain killer
6. The Athlete's foot disease in human is caused by-----
 - a) Bacteria
 - b) **Fungi**
 - c) Virus
 - d) Protozoan
7. Cirrhosis of liver is caused by chronic intake of -----
 - a) Opium
 - b) **Alcohol**
 - c) Tobacco
 - d) Cocaine
8. The sporozoite of the malarial parasite is present in ----
 - a) **saliva of infected female Anopheles mosquito.**
 - b) RBC of human suffering from malaria.
 - c) Spleen of infected humans.
 - d) Gut of female Anopheles mosquito.
9. Paratope is an
 - a) Antibody binding site on variable regions
 - b) Antibody binding site on heavy regions
 - c) **Antigen binding site on variable regions**
 - d) Antigen binding site on heavy regions
10. Allergy involves
 - a) **IgE**
 - b) IgG
 - c) IgA
 - d) IgM
11. Spread of cancerous cells to distant sites is termed as
 - a) **Metastasis**
 - b) Oncogenes
 - c) Proto-oncogenes
 - d) Malignant neoplasm
12. AIDS virus has

9. APPLICATIONS OF BIOTECHNOLOGY**I. Choose the correct answer**

- The first clinical gene therapy was done for the treatment of
 - AIDS
 - Cancer
 - Cystic fibrosis**
 - SCID
- Dolly, the sheep was obtained by a technique known as
 - Cloning by gene transfer
 - Cloning without the help of gametes
 - Cloning by tissue culture of somatic cells
 - Cloning by nuclear transfer.**
- The genetic defect adenosine deaminase deficiency may be cured permanently by
 - Enzyme replacement therapy**
 - periodic infusion of genetically engineered lymphocytes having ADA cDNA
 - administering adenosine deaminase activators
 - introducing bone marrow cells producing ADA into embryo at an early stage of development.
- How many amino acids are arranged in the two chains of Insulin?
 - Chain A has 12 and Chain B has 13
 - Chain A has 21 and Chain B has 30 amino acids**
 - Chain A has 20 and chain B has 30 amino acids
 - Chain A has 12 and chain B has 20 amino acids.
- PCR proceeds in three distinct steps governed by temperature, they are in order of
 - Denaturation, Annealing, Synthesis**
 - Synthesis, Annealing, Denaturation
 - Annealing, Synthesis, Denaturation
 - Denaturation, Synthesis, Annealing
- Which one of the following statements is true regarding DNA polymerase used in PCR?
 - It is used to ligate introduced DNA in recipient cells
 - It serves as a selectable marker
 - It is isolated from a Virus
 - It remains active at a high temperature.**
- ELISA is mainly used for
 - Detection of mutations
 - Detection of pathogens**
 - Selecting animals having desired traits
 - Selecting plants having desired traits
- Transgenic animals are those which have
 - Foreign DNA in some of their cells
 - Foreign DNA in all their cells**
 - Foreign RNA in some of their cells
 - Foreign RNA in all their cells
- Recombinant Factor VIII is produced in the ----- cells of the Chinese Hamster
 - Liver cells
 - blood cells
 - ovarian cells**
 - brain cells.
- Vaccines that use components of a pathogenic organism rather than the whole organism are called
 - Subunit recombinant vaccines**
 - attenuated recombinant vaccines
 - DNA vaccines
 - conventional vaccines.

10. ORGANISMS AND POPULATION

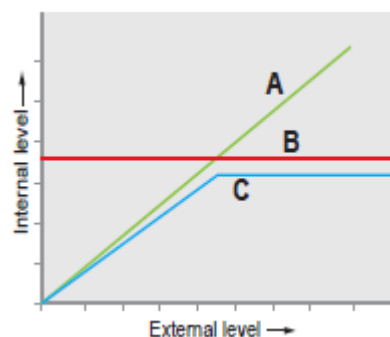
I. Choose the Correct Answer

- All populations in a given physical area are defined as
 - Biome**
 - Ecosystem
 - Territory
 - Biotic factors
- Organisms which can survive a wide range of temperature are called
 - Ectotherms
 - Eurytherms**
 - Endotherms
 - Stenotherms
- The interaction in nature, where one gets benefit on the expense of other is...
 - Predation
 - Mutualism
 - Amensalism
 - Commensalism**
- Predation and parasitism are which type of interactions?
 - (+,+)
 - (+, 0)
 - (-, -)
 - (+, -)
- Competition between species leads to
 - Extinction**
 - Mutation
 - Amensalism
 - Symbiosis
- Which of the following is an r-species
 - Human
 - Insects**
 - Rhinoceros
 - Whale
- Match the following and choose the correct combination from the options given below.

Column I	Column II
A. Mutualism	1. Lion and deer
B. Commensalism	2. Round worm and man
C. Parasitism	3. Birds compete with squirrels for nuts
D. Competition	4. Sea anemone on hermit crab
E. Predation	5. Barnacles attached to Whales.

Dispersal

 - A- 4, B-5, C-2, D -3, E-1**
 - A- 3, B-1, C-4, D - 2, E-5
 - A- 2, B-3, C-1, D - 5, E-4
 - A- 5, B-4, C-2, D - 3, E-1
- The figure given below is a diagrammatic representation of response of organisms to abiotic factors. What do A, B and C represent respectively.



S.No.	A	B	C
a.	Conformer	Regulator	Partial Regulator

- c) Qatar
d) Saudi Arabia
7. The use of microorganism metabolism to remove pollutants such as oil spills in the water bodies is known as
- a) Biomagnification
b) **Bioremediation**
c) Biomethanation
d) Bioreduction
8. The Ozone Day is observed every year on September 16 as on this day in 1987 the _____ was signed for launching efforts to arrest the depletion of the fragile ozone layer in the stratosphere that prevents the harmful ultra-violet rays of the sun from reaching the earth. Fill the correct word in blank.
- a) **Montreal Protocol**
b) Geneva Protocol
c) Kyoto Protocol
d) Nagoya Protocol
9. Which among the following always decreases in a Food chain across tropic levels?
- a) Number
b) Accumulated chemicals
c) **Energy**
d) Force
10. In the E-waste generated by the Mobile Phones, which among the following metal is most abundant?
- a) **Copper**
b) Silver
c) Palladium
d) Gold
11. The Hydrochlorofluorocarbons (HCFCs) are the compounds which have the following molecules:
- a) Hydrogen
b) Carbon
c) **Chlorine**
d) Fluorine
12. SMOG is derived from :
- a) Smoke
b) Fog
c) **Both A and B**
d) Only A
13. Excess of fluoride in drinking water causes:
- a) Lung disease
b) Intestinal infection
c) **Fluorosis**
d) None of the above