

BIOLOGY

1) Which of the following contraceptive method can be used for male and female both?

(A) Barriers and Sterilisation

(B) Barriers and Implants ✗

(C) IUDs and Barriers ✗

(D) Implants and Sterilisation ✗

2) Which term is coined for the physical association of 2 genes on the same chromosome?

(A) Gene flow

(B) Pleiotropy

(C) Linkage

(D) Recombination

3) What is the full form of UTR?

(A) Uni Translated Regions

(B) Ultra Transcribed Regions

(C) Un Translated Regions

(D) Unbound Transcribed Regions

(Space for Rough Work)

4) Match Column - I and Column - II and choose correct option.

	Column - I		Column - II
(i)	65 million years ago (s)	(p)	Sea weeds existed
(ii)	350 million years ago (r)	(q)	Invertebrates formed
(iii)	500 million years ago (q)	(r)	Jawless fish evolved
(iv)	320 million years ago	(s)	Dinosaurs disappeared

(A) (i - s), (ii - r), (iii - q), (iv - p)

(B) (i - r), (ii - p), (iii - s), (iv - q)

(C) (i - s), (ii - r), (iii - p), (iv - q)

(D) (i - q), (ii - p), (iii - s), (iv - r)

5) Which chemical causes the side-effect of enlargement of clitoris in female?

(A) Diuretics

(B) Anabolic steroids

(C) Peptide Hormone

(D) Narcotic analgesics

6) Which of the following bacteria is free-living in the soil?

(A) Trichoderma

(B) Oscillatoria

(C) Rhizobium

(D) Azospirillum

7) The separated bands of DNA are cut out from the agarose gel and extracted from the gel piece. This step is known as _____

(A) Elution

(B) Micro-injection

(C) Biolistics

(D) Extension

(Space for Rough Work)

8) At present, about _____ recombinant therapeutics have been approved for human-use, the world over.

- (A) 10
- (B) 25
- (C) 15
- (D) 30

9) In a forest, there are initially 100 deer. Over a certain period 30 are born and 10 die. Assuming food is abundant and predators are few. Calculate the intrinsic rate of natural increase for that population.

- (A) 0.4
- (B) 0.18
- (C) 0.2
- (D) 0.015

10) In the given statements, select the correct option for the process of decomposition.

- (1) Moist environment favour decomposition. ✓
- (2) Low temperature and anaerobiosis inhibit decomposition. ✓
- (3) Decomposition is slower, if detritus is rich in nitrogen. ✗
- (4) Decomposition is quicker if detritus is rich in chitin. ✗
- (5) Warm environment favour decomposition.

- (A) 1, 2, 3, 5 are true ✗
- (B) 1, 2, 5 are true
- (C) 3, 4, 5 are true ✗
- (D) 1, 5 are true

$$\frac{dN}{dt} = rN$$

(Space for Rough Work)

$$\frac{dN}{dt} =$$

$(10 + 1)$

$$\frac{120 - 100}{100}$$

11) Match Column - I and Column - II. And Select the correct option.

Column - I	Column - II
(i) <u>dodo</u>	(p) Africa
(ii) <u>quagga</u>	(q) Mauritius
(iii) thylacine	(r) Russia
(iv) <u>steller's sea cow</u>	(s) Australia

(A) (i - r), (ii - s), (iii - p), (iv - q) ✗

(B) (i - q), (ii - r), (iii - s), (iv - p)

(C) (i - s), (ii - r), (iii - q), (iv - p) ✗

(D) (i - q), (ii - p), (iii - s), (iv - r)

12) In an angiosperm plant endosperm cell is having 24 chromosomes, then how many chromosomes are present in MMC of the same plant?

(A) 32

(B) 16

(C) 12

(D) 8

$$2n = 24$$

$$3n = 24$$

$$n = \frac{24}{3} = 8$$

$$2n = 8 \times 2$$

13) Which of the following hormone is not produced from the placenta?

(A) Gonadotropin

(B) Human placental Lactogen

(C) Estrogen ✓

(D) Relaxin

incl. FSH

(Space for Rough Work)

14) In the given assisted reproductive technologies which method is taking place inside the body for the process of fertilisation?

(A) GIFT

(B) ZIFT

(C) IUT

(D) ICSI

15) Select the incorrect option for mutation.

(A) Results in alternation of DNA sequence

(B) According to De-Vries mutation is the reason for speciation ✓

(C) According to Hugo-de-Vries mutation is small and directional ✗

(D) Results in changes in genotype and phenotype

16) In Meselson and Stahl's Experiment, heavy DNA molecule could be distinguished from the normal DNA by centrifugation in a _____ density gradient.

(A) NH_4Cl

(B) CsCl

(C) Ethidium bromide

(D) Trichloro acetic acid

17) During which geological period order Gnetales of gymnosperms are evolved?

(A) Permian

(B) Triassic

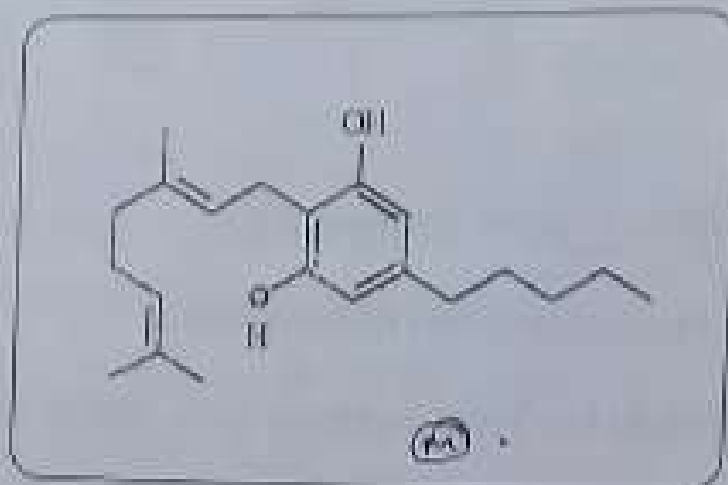
(C) Jurassic

(D) Cretaceous

(Space for Rough Work)

18) A) For General Students

The molecule which shows, the given structure is naturally obtained from which plant?



(A) Papaver somniferum

(B) Cannabis sativa

(C) Erythroxylum coca

(D) Atropa belladonna

18) B) For Blind Students.

Which drug is obtained by acetylation of morphine.

(A) Charas

(B) Smack

(C) Hashish

(D) Coke

(Space for Rough Work)

19) In the given column, which one is mis-matched.

Option	Microbes	Product	Use
(A)	Aspergillus niger	Citric acid	Industry
(B)	Streptococcus	Streptokinase	Clot buster
(C)	Monascus purpureus	Cyclosporin-A	Immuno sup present
(D)	Saccharomyces cerevisiae	Ethanol	Fermented beverages

20) Enzyme used for extension process in PCR method.

- (A) Taq polymerase (B) Restriction Endonuclease
(C) DNA Helicase (D) DNA Ligase

21) RNA Interference involves silencing of specific mRNA due to complimentary molecule that binds to and prevents translation of the mRNA.

- (A) ds-DNA (B) ss-RNA
(C) ds-RNA (D) ss-DNA

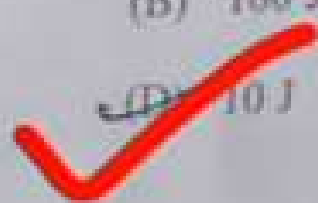
22) Who's field experiment showed that on the rocky sea coast, the larger and competitively superior barnacle excludes smaller barnacle?

- (A) Connell (B) MacArthur
(C) Gause (D) Verhulst-Pearl

(Space for Rough Work)

23) In an ecosystem 1000 J energy is stored in producer level, then how much energy will be obtained in secondary consumer level?

- (A) 1 J
 (B) 100 J
 (C) 0.1 J
 (D) 10 J



24) The term Biodiversity is popularised by _____

- (A) Paul Ehrlich
 (B) Edward Wilson
 (C) David Tilman
 (D) Vonhumbolt



25) Choose the correct option for column - I, II and III.

Column - I	Column - II	Column - III
(i) Monoecious	(p) Prevent both autogamy and geitonogamy	(x) <u>Caster</u> , Maize
(ii) Dioecious	(q) Prevent autogamy but not geitonogamy	(y) Papaya, Date palm

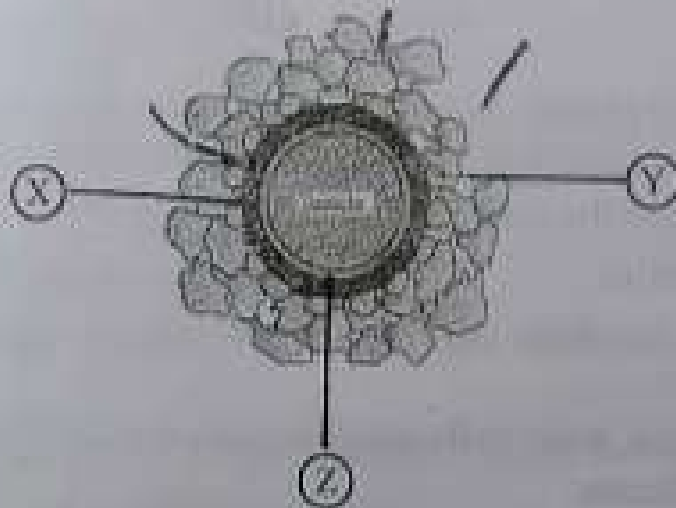
- (A) I - i II - q III - y
 (B) I - ii II - p III - x
 (C) I - ii II - q III - y ✓
 (D) I - i II - q III - x



(Space for Rough Work)

26) A) For General Students.

In the given diagram, choose the correct option for labelled 'X' 'Y' and 'Z'



(A) X - Zona pellucida Y - Corona radiata Z - Perivitelline Space

(B) X - Corona radiata Y - Zona pellucida Z - Perivitelline space

(C) X - Zona Pellucida Y - Perivitelline space Z - Corona radiata

(D) X - Corona radiata Y - Perivitelline space Z - Zona pellucida

26) B) For Blind Students

In human during fertilisation entry of additional sperms into ovum is blocked by

(A) Zona pellucida

(B) Perivitelline space

(C) Corona radiata

(D) Theca layer

27) In the following STIs, which one is not completely curable?

(A) Genital warts, Chlamydia, HIV (B) Trichomoniasis, HIV, Syphilis

(C) Hepatitis - B, Genital herpes, HIV (D) Gonorrhoea, HIV, Chlamydia

(Space for Rough Work)

- 28) A colour blind man marries a female with homozygous normal vision. What will be the possibility of colour blindness in their male children?
- (A) 100% (B) 50% (C) 25% (D) 0%
- Handwritten notes for Q28: $XcYc \times XX$
 $\times c$ $\times c$
 γc XcX XcX
 $X\gamma c$ $X\gamma c$
- 29) In human genome project, among two major approaches sequencing the whole set of genome, that contained all the coding and non-coding sequence and later assigning different regions in the sequence with functions is called _____
- (A) Bioinformatics (B) Sequence Annotation (C) Expressed Sequence Tags (D) Single nucleotide polymorphism
- 30) In natural selection, more individuals acquire value other than the mean character value, which indicates
- (A) Stabilising (B) Stabilising Directional both (C) Disruptive (D) Directional
- 31) Snake venom antibody is the antibody prepared against snake venom is the example of which type of immunisation?
- (A) Active immunity (B) Auto-immunity (C) Passive immunity (D) Allergies
- 32) Which group of microbes are acting as bio control agents? Select the correct option.
- (A) Baculo virus, Oscillatoria, Rhizobium (B) Azotobacter, Trichoderma, Glomus (C) Trichoderma, Baculo virus, Bacillus thuringiensis (D) Azospirillum, Anabaena, Bacillus thuringiensis
- 33) What is the correct nomenclature for restriction enzyme - 1, obtained from *Bacillus amyloliquefaciens* H?
- (A) Bam HI (B) Bac HI (C) Baam HI (D) Bam III

(Space for Rough Work)

34) In which kind of population interaction, one species is harmed whereas the other is unaffected?

- (A) Competition ✓
(C) Commensalism +, 0

(B) Amensalism
(D) Parasitism

35) Which two parts of the different plants can be fused for the formation of new plant in somatic hybridisation?

(A) Pollen grain

(B) Male - female gamete

(C) Protoplast

(D) Eggs

36) Sparrow eats seeds. After wards it eats insects. In which trophic level sparrow belongs in both situations respectively?

~~(A) Primary - Secondary~~

(B) Tertiary - Quarternary

(C) Secondary - Tertiary

(D) Primary - Tertiary

37) Oxygen available from the nature belongs to which biodiversity conservation category?

(A) Narrowly utilitarian

(B) Intangible benefits

(C) Broadly utilitarian

(D) Ethical

38) Assertion : (A) - Geitonogamy is genetically similar to autogamy ✓

Reason : (R) - In geitonogamy pollen grains come from the same plant.

(A) A and R both are correct, 'R' is the correct explanation of A

(B) A and R both are correct, 'R' is not correct explanation of A

(C) A is correct but 'R' is wrong

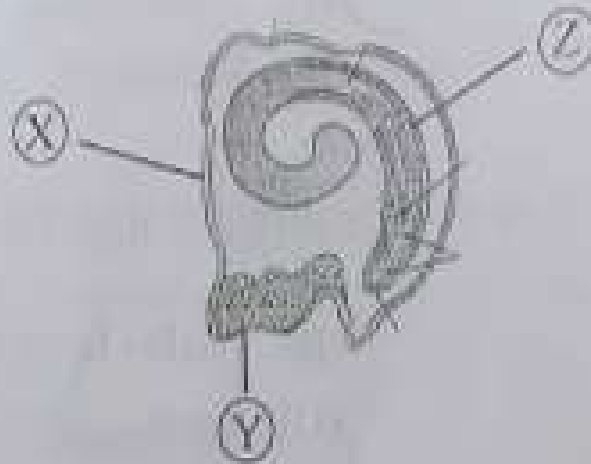
(D) A is wrong but R is correct

(Space for Rough Work)



39) A) For General Students.

Identify 'X' 'Y' and 'Z' from the given diagram.



- (A) X - Seed coat : Y - Cotyledon : Z - Endosperm
- (B) X - Seed coat : Y - Endosperm : Z - Cotyledon**
- (C) X - Pericarp : Y - Root tip : Z - Endosperm
- (D) X - Pericarp : Y - Endosperm : Z - Scutellum

39) B) Only for Blind Students.

In the grass family the cotyledon is called _____

- (A) Hypocotyl
- (B) Scutellum**
- (C) Epicotyl
- (D) Coleoptile

40) The seminiferous tubules of the testis open into _____ 'X' through _____ 'Y'

- (A) X - Vas deferens Y - rete testis
- (B) X - rete testis Y - Epididymis
- (C) X - Vas deferens Y - Epididymis
- (D) X - Vasa efferentia, Y - rete testis**

(Space for Rough Work)