

CUET UG – 2022

BIOLOGY

Question : 1

The protein formed by the encoded gene expression in a heterologous host is called:

- A Structural protein
- B Recombinant protein
- C Transposone
- D Prohormone

Question : 2

A kind of population interaction in which one species benefits and the other is neither harmed nor benefited?

- A Commensalism
- B Ammensalism
- C Mutualism
- D Parasitism

Question : 3

Fruit which develop only from the ovary are called-

- A False fruits
- B Parthenocarpic fruits
- C True fruits
- D Apomictic fruits

Question : 4

Algal blooms do not cause-

- A imbalance in ecosystem dynamics
- B deterioration of the water quality and fish mortality
- C reduction in BOD
- D increase in organic matters in water body

Question : 5



Observe the given figure and name the step used in Recombinant DNA Technology

- A Selecting
- B Scrolling
- C Spiraling
- D Spooling

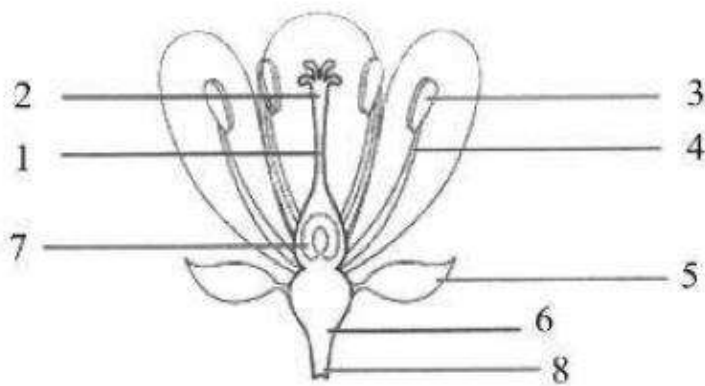
Question : 6

Perisperm differs from endosperm is that it is-

- A haploid having reserve food
- B polyploid having reserve food
- C triploid having no reserve food
- D diploid having no reserve food

Question : 7

Identify and name the two parts in a flower which are most important units of sexual reproduction?



- A 1 - Style, 3 - Stamen
- B 4 - filament, 6 - thalamus
- C 3 - Anther, 7 -ovary
- D 2 - Stigma, 5 - sepals

Question : 8

Density of population tells us about -

- A total number of individuals of a species
- B total area occupied by a species
- C number of individuals present per unit space in a given time
- D population growth in a particular time span

Question : 9

Select the hormones produced in women only during pregnancy

- A. Estrogen
- B. Human chronic gonadotroph
- C. Progesterone
- D. Human placental lactogen
- E. Relaxin

Choose the correct answer from the options given below:

- A B and D only
- B B and E only
- C A, B and C only
- D B, D and E only

Question : 10

Which of the following is not an example of terrestrial ecosystem?

- A Wetland
- B Grassland
- C Forest
- D Desert

Question : 11

Transfer of an ovum collected from a donor into fallopian tube is called _____ method.

- A ZIFT
- B ICSI
- C GIFT
- D IVF

Question : 12

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**.

Assertion A: Leydig cells synthesise and secrete male testicular hormones called androgens.

Reason R: Androgens, stimulate the process of spermatogenesis.

In the light of the above statements, choose the *most appropriate* answer from the options given below:

- A Both A and R are correct and R is the correct explanation of A
- B Both A and R are correct and R is NOT the correct explanation of A
- C A is correct but R is not correct
- D A is not correct but R is correct

Question : 13

The inactive protoxin gets converted into an active form due to the _____

- A Alkaline pH of insect's gut
- B Temperature and acidic pH of gut
- C Exposure to light
- D Exposure to light and acidic pH of gut

Question : 14

Which of the following gets embedded in the endometrium during implantation?

- A Zygote
- B Morula
- C Blastocyst
- D Embryo

Question : 15

Introduction of which one of the following organisms/species did cause decline or extinction of indigenous species?

- A Eicchornia Crassipes
- B Nile Perch
- C Clarias gariepinus
- D Steller's Sea cow

Question : 16

Match List I with List II

List I	List II
A. Progestasert	I. once a week pill
B. <i>Saheli</i>	II. hormone releasing IUD
C. Lippe's Loop	III. Non-medicated IUD
D. Periodic abstinence	IV. Natural method of birth control

Choose the correct answer from the options given below:

- A A - II, B - III, C - I, D - IV
- B A - I, B - II, C - IV, D - III
- C A - II, B - I, C - III, D - IV
- D A - II, B - IV, C - I, D - III

Question : 17

The vital link that ensures continuity of species between organisms of one generation and the next generation is-

- A Male gamete
- B Female gamete
- C zygote
- D syngamy

Question : 18

In case of COVID positive patients, presence of corona virus is suspected only when the pathogen has produced a disease symptom. But when the symptoms of the disease has not appeared, the corona virus in the body can be detected by-

- A Enzyme linked immuno-sorbent Assay (ELISA) only
- B Recombinant DNA technology only
- C Reverse transcriptase Polymerase Chain Reaction (RT-PCR)
- D Widal Test

Question : 19

Bacillus thuringiensis is a biocontrol agent against _____

- A Nematode
- B Fungal pathogen
- C Insect pests
- D bacterial pathogen

Question : 20

Arrange the following events in the female reproductive cycle in their natural sequence.

- A. Ovulation
- B. Growth of corpus luteum
- C. Sudden increase in level of LH
- D. Secretion of FSH
- E. Growth of ovarian follicle and oogenesis

Choose the correct answer from the options given below:

- A E - D - A - B - C
- B D - E - C - A - B
- C E - C - A - D - B
- D D - A - C - E - B

Question : 21

Which of the following methods are commonly used in DNA finger printing?

- A genetic transformation
- B PCR & RFLP
- C bio prospecting
- D molecular diagnosis

Question : 22

Which layer of microsporangium is nutritive in function?

- A Epidermis
- B Endothecium
- C Middle Layers
- D Tapetum

Question : 23

Match List I with List II

List I	List II
A. Catalytic converter	I. Particulate matter
B. Incinerators	II. Organic waste
C. Electrostatic precipitator	III. Hospital Waste
D. Sewage treatment plant	IV. carbon monoxide and nitrogen oxides

Choose the correct answer from the options given below:

- A** A - III, B - II, C - IV, D - I
- B** A - IV, B - III, C - I, D - II
- C** A - II, B - III, C - I, D - IV
- D** A - I, B - II, C - IV, D - III

Question : 24

During gene therapy, which vector is used to introduce functional ADA cDNA into lymphocyte

- A** Plasmid
- B** Bacteriophage
- C** pBR322
- D** Retrovirus

Question : 25

The animals that feed on herbivores like insects, birds & mammals in terrestrial ecosystem, are called _____ .

- A saprotrophs
- B primary consumers
- C secondary carnivores
- D primary carnivores

Question : 26

Recombinant Proteins are expressed in:

- A Cloning vector
- B Heterology Host
- C Homologous chromosomes
- D Promotor

Question : 27

The chemical carcinogens present in tobacco smoke is the major cause of _____

- A AIDS
- B Lung Cancer
- C Allergy
- D Pneumonia

Question : 28

Match the features that are required to facilitate cloning of alien DNA into a vector

List I: Features to facilitate	List II: Cloning Vector
A. Origin of replication (ori)	I. <i>Agrobacterium tumifaciens</i>
B. Selectable Marker	II. Recognition sites commonly used for restriction enzymes
C. Cloning sites	III. helps in identifying and eliminating non-transformants
D. Vectors for cloning genes in plants	IV. sequence from where replication starts

Choose the correct answer from the options given below:

- A A - IV, B - III, C - II, D - I
- B A - I, B - II, C - III, D - IV
- C A - II, B - III, C - IV, D - I
- D A - III, B - I, C - II, D - IV

Question : 29

Which of the following is effect of steroid in males?

- A premature baldness
- B deepening of voice
- C excessive hair growth on face and body
- D Enlargement of clitoris

Question : 30

Which of the following cells produce antibodies?

- A Monocytes
- B PMNL neutrophils
- C T-lymphocytes
- D B- lymphocytes

Question : 31

Nutrient cycles are of two types:

- A Gaseous and solid
- B Liquid and sedimentary
- C Gaseous and sedimentary
- D Aquatic and Gaseous

Question : 32

Technology of biogas production in India was developed due to the efforts of -

- A. GEAC
- B. ICAR
- C. IARI
- D. IRRI
- E. KVIC

Choose the correct answer from the options given below:

- A A and B only
- B C and D only
- C B and D only
- D C and E only

Question : 33

The bacterium responsible for breakdown of cellulose in a biogas plant is

- A *Acetobacter aceti*
- B *Lactobacillus*
- C *Clostridium*
- D *Methanobacterium*

Question : 34

With reference to processing of hn RNA, which of the following statements is/are INCORRECT?

- A. Introns are removed and exons are joined directly splicing.
- B. Capping & Tailing occurs at 5' end & 3' end respectively.
- C. Addition of 200-300 adenylated residues means capping.
- D. Addition of guanosine triphosphate takes place at 5' end.
- E. Processing take place in the nucleus and converts hn RNA into functional RNA.

Choose the correct answer from the options given below:

- A B only
- B C only
- C B and C only
- D B and D only

Question : 35

Match List I with List II

List I (Name of Scientists)	List II (Discovery)
A. Alec Jeffreys	I. Lac Operon
B. Francois Jacob and Jacques Monod	II. Deciphering of genetic code
C. Marshall Nirenberg	III. Semiconservative replication of DNA
D. Masselson Stahl	IV. DNA Fingerprinting

Choose the correct answer from the options given below:

- A A - IV, B - I, C - II, D - III
- B A - I, B - III, C - IV, D - II
- C A - II, B - III, C - I, D - IV
- D A - IV, B - II, C - III, D - I

Question : 36

The pyramid of biomass in sea is generally inverted because:

- A sunlight is filtered through sea water leading to less photosynthesis
- B of the high salt content of sea water
- C the biomass of phytoplankton far exceeds that of fishes
- D the biomass of fishes far exceeds that of phytoplankton

Question : 37

One of the following is NOT a characteristic/ criteria of genetic materials, identify it:

- A Genetic material should be able to generate its replica
- B Genetic material should be stable chemically and structurally
- C It should not provide the scope for mutations.
- D It should be able to express itself in the forum of mendelian characters.

Question : 38

Adenine pairs with Thymine through how many hydrogens bonds?

- A 2
- B 3
- C 4
- D 5

Question : 39

A pure breeding garden pea plant was crossed with a pure dwarf plant. The plant produced 400 seeds. The seeds were sown to produce plants. The phenotype of the plants in next generation will be -

- A All tall
- B All dwarf
- C 300 tall and 100 dwarf plants
- D All plants of intermediate height

Question : 40

If in a pond there were 150 carps found last year and through reproduction 450 new carps are added in the pond, what will be the birth rate here?

- A 4 offsprings per carp per year
- B 3 offsprings per carp per year
- C 2 offsprings per carp per year
- D 1 offspring per carp per year

Passage:

Life appeared 500 million years after the formation of earth, i.e., almost four billion years back.

Early Greek thinkers thought units of life called spores were transformed to different planets including earth. 'Panspermia' is still a favourite idea of some astronomers.

Louis Pasteur by careful experimentation demonstrated that life comes only from pre-existing life. However, this did not answer how the first life form came on Earth.

Oparin of Russia and Haldane of England proposed that the first form of life would have come from pre-existing non-living organic molecules (RNA, proteins etc.) and formation of life was preceded by chemical evolution, i.e., formation of diverse organic molecules from inorganic constituents. The conditions on earth were – high temperature, volcanic storms, reducing atmosphere containing CH_4 , NH_3 etc.

In 1953, S.L. Miller, an American scientist, created similar conditions in a laboratory scale. He created electric discharge in a closed flask containing CH_4 , H_2 , NH_3 and water vapour at 800°C . He observed formation of amino acids. In similar experiments others observed, formation of sugars, nitrogen bases, pigment and fats. With this limited evidence, the first part of the conjectured story, i.e., chemical evolution was more or less accepted.

Question : 41

When the life appear on the earth after it's formation?

- A After 200 million years
- B After 300 million years
- C After 500 million years
- D After 250 million years

Question : 42

According to the early Greek thinkers, the unit of life which were transferred to different planets were -

- A spores
- B water
- C oxygen
- D methane

Question : 43

Louis Pasteur by careful experimentation demonstrated that life comes from -

- A killed yeast
- B rotting matter
- C other plants
- D pre-existing life

Question : 44

Oparin and Haldane proposed the theory that the first form of life could have come from -

- A Non-living organic molecules
- B Inorganic molecules
- C UV rays
- D CO₂ and water

Question : 45

The theory of Chemical evolution was studied and tested in laboratory by -

- A Charles Darwin
- B S.L. Miller
- C Louis Pasteur
- D Haldane

Passage:

Read the paragraph and answer the questions:

Plant tissue culture is based on the special property of plant cells to generate a whole plant, called totipotency. The plant part used in tissue culture is called explant. The nutrient medium provides a carbon sources such as sucrose, inorganic salts, vitamins, amino acids and growth regulators like auxins cytokinins etc. Propagation of thousands of plants in very short duration through tissue culture is called micropropagation. Each of these plants will be genetically identical to the original plant i.e., they are somaclones.

Another application of tissue culture is to recover virus free plants, from the infected ones. The apical or axillary meristem, which is free of virus, is removed and cultured *in-vitro* to obtain virus-free plants. Scientists have succeeded in culturing meristems of sugarcane, banana, potato etc.

Scientists have isolated single cells from plants and after digesting their cell walls, the protoplasts were isolated. Protoplasts from two different varieties of plants – each having a desirable character – are fused to get hybrid protoplasts. These hybrid protoplasts are called somatic hybrids and the process is called somatic hybridisation. Somatic hybrids are further grown to form a new plant. Protoplast of tomato is fused with that of potato, to form new hybrid plants called Pomato. Pomato unfortunately did not have all the desired combination of the two plants.

Question : 46

The explant used in tissue culture must show _____

- A Encystation
- B Sporulation
- C Dioecy
- D Totipotency

Question : 47

Virus free plants of banana are developed by using _____

- A Protoplasts
- B Meristem
- C Cotyledon
- D Leaf

Question : 48

Pomato is developed by _____ technique.

- A Micropropagation
- B Mutation breeding
- C Biofortification
- D Somatic hybridization

Question : 49

In tissue culture, the nutrient medium usually contains _____ as a carbon source.

- A Sucrose
- B Maltose
- C Carbon dioxide
- D Calcium carbonate

Question : 50

Protoplasts are obtained by digestion of _____ of the cells.

- A Nuclei
- B Plasma membranes
- C cell walls
- D Proteins