

CUET UG 2023 Biology Question Paper PDF (May 22, 2023) (Shift 1)

Q1. 'Pomato' is an example of:

- (a) Single Cell Protein
- (b) Somaclonal Variation
- (c) Meristem Cultured Plant
- (d) Somatic hybrids

Q2. Match **List-I** with **List-II**:

List-I		List-II	
(A)	Rheumatoid arthritis	(I)	Primary lymphoid organ
(B)	AIDS	(II)	Antibody mediated immune response
(C)	Thymus	(III)	Immuno deficiency disease
(D)	B-Lymphocytes	(IV)	Auto-immune disease

Choose the **correct** answer from the options given below:

- (a) (A)-(IV), (B)-(I), (C)-(III), (D)-(II)
- (b) (A)-(III), (B)-(I), (C)-(IV), (D)-(II)
- (c) (A)-(II), (B)-(III), (C)-(I), (D)-(IV)
- (d) (A)-(IV), (B)-(III), (C)-(I), (D)-(II)

Q3. Which of the following is NOT a characteristic of an ideal contraceptive?

- (A) It should be user friendly
- (B) It should be easily available
- (C) It should be irreversible
- (D) It should be with no or least side effects

Choose the **correct** answer from the options given below:

- (a) (A) and (C) only
- (b) (C) only
- (c) (B) and (D) only
- (d) (D) only

Q4. The process through which spermatids are transformed into spermatozoa (sperms) is known as:

- (a) Spermatogenesis
- (b) Spermiogenesis
- (c) Spermiation
- (d) Spermatogonia

Q5. Which Of the following is/ are NOT the step(s) used in separation and isolation of DNA fragments by gel electrophoresis technique:

- (A) Staining with ethidium bromide
- (B) Exposure to UV Radiation
- (C) Cutting DNA fragments into small pieces by using restriction endonuclease
- (D) Denaturation of DNA fragments

Choose the **correct** answer from the options given below:

- (a) (D) only
- (b) (B) and (C) only
- (c) (B) only
- (d) (A) and (D) only

Q6. The secondary ecological succession begins in an area, where:

- (a) Species invade a bare land/rock
- (b) Vegetation has been grazed by Cattles
- (c) Natural biotic communities have been destroyed
- (d) Natural biotic communities are flourishing

Q7. External fertilisation takes place in:

- (a) Lizard
- (b) frog
- (c) Eagle
- (d) Blue whale

Q8. Arrange the given steps in plant breeding systematically.

- (A) Evaluation and selection of parents
- (B) Germplasm collection
- (C) Selection and testing of superior recombinants
- (D) Cross hybridisation among the selected parents

Choose the **correct** answer from the options given below:

- (a) (A), (B), (C), (D)
- (b) (B), (A), (D), (C)
- (c) (B), (C), (A), (D)
- (d) (A), (B), (D), (C)

Q9. If 50,000 J energy available to primary producer, then energy available to tertiary consumer will be:

- (a) 5 J
- (b) 50 J
- (c) 500 J
- (d) 5000 J

Q10. In angiosperms during micorsporogenesis, meiosis occurs in:

- (a) Microspore mother cells
- (b) Endothecium
- (c) Pollen grains
- (d) Tapetum

Q11. In which stage of sewage treatment, large amount of air is pumped into it?

- (a) Both Primary and Secondary Treatments
- (b) Only Primary Treatments
- (c) Only Secondary Treatments
- (d) After Secondary Treatments

Q12. Which one of the following is also called "Terror of Bengal"?

- (a) *Parthenium*
- (b) Water Hyacinth
- (c) *Vallisneria*
- (d) *Hydrilla*

Q13. Which of the following is a complementary sequence of 5' --- GAATTC --- 3'?

- (a) 3' --- GAATTC --- 5'
- (b) 5' --- CTTAAG --- 3'
- (c) 3' --- CTTAAG --- 5'
- (d) 5' --- GAATTC --- 3'

Q14. Which one of the following has a large reservoir of erythrocytes?

- (a) Liver
- (b) Spleen
- (c) Heart
- (d) Bone marrow

Q15. Match List-I with List-II:

List-I		List-II	
(A)	Lamarck	(I)	Natural selection
(B)	Darwin	(II)	Work on populations
(C)	Thomas Malthus	(III)	Mutation
(D)	Hugo de Vries	(IV)	Use and disuse of organs

Choose the **correct** answer from the options given below:

- (a) (A)-(IV), (B)-(III), (C)-(II), (D)-(I)
- (b) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)
- (c) (A)-(II), (B)-(I), (C)-(III), (D)-(IV)
- (d) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)

Q16. Identify the correct options with respect to the salient features of DNA.

- (A) The two polynucleotide chains are coiled in a left-handed fashion
- (B) Adenine forms three hydrogen bonds with thymine
- (C) The distance between a base pair in a DNA helix is approximately 0.34 nm
- (D) The plane of one base pair stacks over the other in double helix

Choose the **correct** answer from the options given below:

- (a) (A), (B), (C), (D)
- (b) (A), (B), (C)
- (c) (C), (D)
- (d) (A), (D)

Q17. The role of restriction enzyme in recombinant DNA technology is:

- (a) Join sticky ends of DNA strand
- (b) Make cut in RNA strand
- (c) Cutting DNA at specific point
- (d) Joining and Cutting of RNA strand

Q18. Sickle cell anaemia is:

- (a) An autosome linked recessive disease
- (b) An autosome linked dominant disease
- (c) Sex linked recessive disease
- (d) Mineral deficiency disease

Q19. Match List-I with List-II:

List-I		List-II	
(A)	Leydig Cell	(I)	GnRH
(B)	Hypothalamus	(II)	Androgens
(C)	Growing follicle	(III)	Progesterone
(D)	Corpus Luteum	(IV)	Estrogen

Choose the **correct** answer from the options given below:

- (a) (A)-(II), (B)-(I), (C)-(IV), (D)-(III)
- (b) (A)-(I), (B)-(III), (C)-(II), (D)-(IV)
- (c) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)
- (d) (A)-(II), (B)-(I), (C)-(III), (D)-(IV)

Q20. Which of the following is not a benefit of genetically modified plants/crops?

- (a) Tolerant to abiotic stresses
- (b) Pest resistance
- (c) Lower yield
- (d) Enhanced nutritional value

Q21. Oparin and Haldane's theory of chemical evolution of life was experimentally supported by:

- (a) Landsteiner and Weiner
- (b) Hardy and Weinberg
- (c) Oparin and Sydney Fox
- (d) Miller and Urey

Q22. An individual with 44 + XO karyotype is suffering from which of the following disorder?

- (a) Down's Syndrome
- (b) Turner's Syndrome
- (c) Klinefelter's Syndrome
- (d) Haemophilia

Q23. Various types of skin colour in humans is an example of'

- (a) Pleiotropy
- (b) Incomplete dominance
- (c) Polygenic inheritance
- (d) Co-dominance

Q24. Match List-I with List-II:

List-I (Molecule)		List-II (Application)	
(A)	Statin	(I)	Immunosuppressive agent
(B)	Streptokinase	(II)	Detergent formulations
(C)	Cyclosporin A	(III)	Blood-cholesterol lowering agent
(D)	Lipase	(IV)	Clot buster

Choose the **correct** answer from the options given below:

- (a) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
- (b) (A)-(II), (B)-(I), (C)-(III), (D)-(IV)
- (c) (A)-(I), (B)-(II), (C)-(IV), (D)-(III)
- (d) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

Q25. The mathematical expression that represents the logistic growth in a population is :

- (a) $\frac{dN}{dt} = rN \left(\frac{K}{K-N} \right)$
- (b) $\frac{dN}{dt} = rN \left(\frac{K-n}{K} \right)$
- (c) $\frac{dN}{dt} = rN$
- (d) $\frac{dN}{dt} = rN(K - N)$

Q26. Match **List-I** with **List-II**:

List-I		List-II	
(A)	Cleistogamous flowers	(I)	Water pollinated flowers
(B)	<i>Vallisneria</i>	(II)	Tallest flower
(C)	<i>Amorphophallus</i>	(III)	Dioecious
(D)	Papaya	(IV)	Do not open at all

Choose the **correct** answer from the options given below:

- (a) (A)-(IV), (B)-(III), (C)-(I), (D)-(II)
- (b) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)
- (c) (A)-(II), (B)-(IV), (C)-(III), (D)-(I)
- (d) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)

Q27. Which of the following plant was introduced in India because of its beautiful flower and shape of leaves?

- (a) Bamboo
- (b) Neelakuranji
- (c) Water Hyacinth
- (d) *Dahlia*

Q28. Choose the correct sequence of events involved in the process of RNA interference.

- (A) dsRNA silences the mRNA produced by nematode
- (B) Using *Agrobacterium* vector nematode specific genes are introduced into the host plant
- (C) Two strands of RNA being complementary to each other form dsRNA
- (D) DNA is introduced in such a way that it produces both sense and antisense RNA in the host

Choose the **correct** answer from the options given below:

- (a) (C), (A), (D), (B)
- (b) (C), (A), (B), (D)
- (c) (B), (D), (C), (A)
- (d) (A), (C), (D), (B)

Q29. Arrange the given steps of DNA fingerprinting in sequence.

- (A) Transferring of separated DNA fragments on nitrocellulose membrane

(B) Isolation of DNA and digestion by restriction endonuclease

(C) Hybridisation using VNTR Probe

(D) Separation of isolated DNA fragments by Gel Electrophoresis

Choose the **correct** answer from the options given below:

- (a) (C), (B), (A), (D)
- (b) (B), (D), (A), (C)
- (c) (C), (D), (A), (B)
- (d) (C), (D), (B), (A)

Q30. Which one of the following is the cause of extinction of Stellar's Sea Cow and Passenger Pigeon?

- (a) Alien species invasion
- (b) Over-exploitation
- (c) Deforestation
- (d) Co-extinction

Q31. Increase in concentration of toxicant in the aquatic food chain is:

- (a) Bio-fortification
- (b) Bio-magnification
- (c) Eutrophication
- (d) Conservation

Q32. A wheat field is inoculated with bacterium *Azotobacter*. Choose the correct option(s) as a result of inoculation.

- (A) The soil will get enriched in potassium
- (B) The soil will get enriched in nitrogen
- (C) There will be no effect on soil fertility
- (D) Wheat production will increase

Choose the **correct** answer from the options given below:

- (a) (A) and (C) only
- (b) (C) and (D) only
- (c) (B) and (D) only
- (d) (A) and (B) only

Q33. Oral contraceptive pills used by the females for birth control are combinations of the following hormones:

- (a) Progesterone-estrogen
- (b) Oxytocin-Progesterone
- (c) FSH-LH
- (d) Testosterone-estrogen

Q34. Match **List-I** with **List-II**:

List-I		List-II	
Microbe		Application	
(A)	<i>Bacillus thuringiensis</i>	(I)	Alcohol
(B)	<i>Saccharomyces cerevisiae</i>	(II)	Immuno-suppressant
(C)	<i>Trichoderma polysporum</i>	(III)	Insecticide
(D)	<i>Aspergillus niger</i>	(IV)	Citric acid

Choose the **correct** answer from the options given below:

- (a) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
- (b) (A)-(II), (B)-(I), (C)-(III), (D)-(IV)
- (c) (A)-(I), (B)-(II), (C)-(IV), (D)-(III)
- (d) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)

Q35. Which of the following used hides to protect their body and buried their dead?

- (a) *Homo habilis*
- (b) *Neanderthal man*
- (c) *Homo erectus*
- (d) *Australopithecines*

Q36. Which of the following is NOT a cause of biodiversity loss due to human activities?

- (a) Habitat loss and fragmentation
- (b) Over-exploitation
- (c) Alien species invasions
- (d) Meteorite Impact

Q37. The interaction between sea anemone and clown fish is:

- (a) Commensalism
- (b) Mutualism
- (c) Amensalism
- (d) Competition

Q38. Match **List-I** with **List-II**:

List-I Name		List-II Functions	
(A)	mRNA	(I)	amino acid carrier
(B)	rRNA	(II)	structural and catalytic role during translation
(C)	tRNA	(III)	Gene
(D)	cistron	(IV)	template for protein synthesis

Choose the **correct** answer from the options given below:

- (a) (A)-(IV), (B)-(II), (C)-(III), (D)-(I)
- (b) (A)-(II), (B)-(I), (C)-(III), (D)-(IV)
- (c) (A)-(I), (B)-(II), (C)-(IV), (D)-(III)
- (d) (A)-(IV), (B)-(II), (C)-(I), (D)-(III)

Q39. Which of the following is/ are not the factor(s) causing the poor health of a person?

- (A) Genetic disorders
- (B) Infections
- (C) Intake of unbalanced diet and un-clean water
- (D) Having good eating habits

Choose the **correct** answer from the options given below:

- (a) (A) and (C) only
- (b) (D) only
- (c) (B) only
- (d) (C) and (D) only

Q40. Which of the following statement about cry genes is NOT correct?

- (a) *cryIAc* control the cotton bollworms
- (b) *cryIIAb* control the cotton bollworms
- (c) *cryIAb* control the cotton bollworms
- (d) *cryIAb* control the corn borer

Direction for the question 41 to 45: **Read the given passage and answer the question given below.**

The sex-linked recessive disease, which shows its transmission from unaffected carrier female to some of the male progeny has been widely studied. In this disease, a single protein that is a part Of the cascade of proteins involved in the clotting of blood is affected. Due to this in an affected individual a simple cut will result in non-stop bleeding. The heterozygous female (carrier) for the disease may transmit it to sons. The possibility of a female becoming a sufferer of disease is extremely rare because mother of such a female has to be at least carrier and the father should be sufferer.

The family pedigree of Queen Victoria shows a number of suffering descendants as she was a carrier of the disease.

Q41. Identify the name of disease seen in the descendents of Queen Victoria:

- (a) Sickle cell anaemia
- (b) Thalassemia
- (c) Haemophilia
- (d) Phenylketonuria

Q42. Identify the type of genetic disorder explained in this paragraph:

- (a) Pedigree Analysis
- (b) Mendelian Disorder
- (c) Chromosomal Disorder
- (d) Incomplete dominance

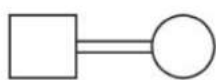
Q43. Identify the genotype of queen Victoria. (• - gene for disorder)

- (a) $X^{\bullet}X^{\bullet}$
- (b) $X^{\bullet}X$
- (c) $X^{\bullet}Y$
- (d) XX

Q44. Man who is sufferer of the disease marries a woman who is a carrier of this disease. What percentage of children born as carrier of this disease?

- (a) 100
- (b) 50
- (c) 25
- (d) zero

Q45. Match **List-I** with **List-II**:

List-I Symbols used in Pedigree analysis		List-II Description	
(A)		(I)	Parents with male child affected with disease

(B)		(II)	Consanguineous mating
(C)		(III)	Mating
(D)		(IV)	Unspecified sex

Choose the **correct** answer from the options given below:

- (a) (A)-(II), (B)-(III), (C)-(IV), (D)-(I)
 (b) (A)-(I), (B)-(IV), (C)-(III), (D)-(II)
 (c) (A)-(II), (B)-(III), (C)-(I), (D)-(IV)
 (d) (A)-(II), (B)-(IV), (C)-(I), (D)-(III)

Direction for the question 46 to 50: **The codons for the various amino acids are given below. Answer the question.**

First Position	Second Position				Third Position
	U	C	A	G	
U	UUU Phe	UCU Ser	UAU Tyr	UGU Cys	U
	UUC Phe	UCC Ser	UAC Tyr	UGC Cys	C
	UUA Leu	UCA Ser	UAA Stop	UGA Stop	A
	UUG Leu	UCG Ser	UAG Stop	UGG Trp	G
C	CUU Leu	CCU Pro	CAU His	CGU Arg	U
	CUC Leu	CCC Pro	CAC His	CGC Arg	C
	CUA Leu	CCA Pro	CAA Gin	CGA Arg	A
	CUG Leu	CCG Pro	CAG Gin	CGG Arg	G
A	AUU Ile	ACU Thr	AAU Asn	AGU Ser	U
	AUC Ile	ACC Thr	AAC Asn	AGC Ser	C
	AUA Ile	ACA Thr	AAA Lys	AGA Arg	A
	AUG Met	ACG Thr	AAG Lys	AGG Arg	G
G	GUU Val	GCU Ala	GAU Asp	GGU Gly	U
	GUC Val	GCC Ala	GAC Asp	GGC Gly	C
	GUA Val	GCA Ala	GAA Glu	GGA Gly	A
	GUG Val	GCG Ala	GAG Glu	GGG Gly	G

Q46. Identify the sequence of amino acids in an mRNA AUG UUU UUA CCU UCG A _____.

- (a) Met Phe Leu Ser Pro
 (b) Met Phe Leu Pro Ser
 (c) Met Leu Phe Pro Ser
 (d) Phe Pro Leu Met Ser

Q47. Identify the degenerate codon from the following:

- (a) CCU, CAU, CGU
 (b) UUG, UCG, UAG.
 (c) AUU, ACU, AAU
 (d) GUU, GUG, GUA

Q48. Identify the start codon from the following:

- (a) AUG
 (b) AUC
 (c) UAG
 (d) UGC

Q49. What will be the number of amino acids in a polypeptide chain formed from the RNA with the given codons?

AUG GUU GCA CGU UAA AAU AAG

- (a) 6
 (b) 7
 (c) 4
 (d) 5

Q50. In the given RNA the nitrogenous base at position 2 of the fourth codon is replaced by G. What will be the effect on protein synthesis?

AUG GUU AGU UAA

- (a) Different protein is synthesised
 (b) Change in amino acid at position four
 (c) No effect on protein synthesis
 (d) Transcription will not be initiated