CUET UG 2023 Biology Question Paper PDF (May 30, 2023) (Shift 2)

Q1. Which of the following structures have 3n (triploid) number of chromosomes?
(a) Zygote
(b) Megaspore mother cell
(c) Primary endosperm cell
(d) Synergids

Q2. The mathematical expression that represents the Exponential growth in a population is:
(a) $dN/dt = rN$
(b) $dN/dt = \left(\frac{K}{K-N}\right)$
(c) $dN/dt = rN\left(\frac{K-N}{K}\right)$
(d) $dN/dt = rN(K-N)$

Q3. Which of the following is **NOT** a copper releasing IUDs?
(a) CuT
(b) Multiload 375
(c) Cu7
(d) LNG-20

Q4. Write the steps in sequential order from fertilisation to implantation -
(A) Mitosis in zygote
(B) Embedding of blastocyst in endometrium
(C) Formation of blastocyst from morula
(D) Male gamete and secondary oocyte fuses to form zygote
(E) Formation of morula

Choose the **correct** answer from the options given below:
(a) (A), (E), (D), (B), (C)
(b) (D), (E), (A), (C), (B)
(c) (A), (B), (E), (D), (C)
(d) (D), (A), (E), (C), (B)

Q5. *Java* and *Ratna* are high yielding semi-dwarf varieties of
(a) Wheat
(b) Maize
(c) Rice
(d) Millet

Q6. Which is **NOT** a major characteristic feature of biodiversity 'Hot Spot'?
(a) High degree of endemism
(b) Large number of species
(c) Mostly located in the polar region
(d) Located in the tropical region

Q7. Skin colour in human being is an example of:
(a) Incomplete dominance
(b) Co-dominance
(c) Polygenic inheritance
(d) Multiple allelism

Q8. Down's syndrome is a genetic disorder. It is due to:
(a) The presence of an additional copy of the chromosome number 21
(b) The absence of one of the X chromosome.
(c) The presence of an additional copy of X chromosome resulting into karyotype of 47 chromosomes.
(d) Inborn error of metabolism

Q9. Which of the following is correct in the context of haemophilia?
(a) It is a sex-linked recessive disease.
(b) It is a sex-linked dominant disease.
(c) It is an autosome linked recessive disease.
(d) It is an autosome linked dominant disease.

Q10. In malignant tumor, the cells proliferate, grow very rapidly and move to other parts of body to form new tumors. This property is called:
(a) Mitosis
(b) Metagenesis
(c) Gametogenesis
(d) Metastasis

Q11. Which of the following technique(s) is/ are NOT useful in early detection of cancer?
(A) X-rays radiography
(B) Computed tomography
(C) Widal test
(D) Biopsy and histopathological studies
(E) Magnetic Resonance Imaging

Choose the **correct** answer from the options given below:
(a) (A) and (D) Only
(b) (B) and (E) only
(c) (A) only
(d) (C) only

Q12. Montreal Protocol was signed at Montreal in 1987 to control.
(a) Global warming
(b) Emission of ozone depleting subtances
(c) Biological diversity
(d) Deforestation

Q13. Which of the following statements is INCORRECT about Genetic Engineering Approval Committee?
(a) It make decisions regarding the validity of GM research
(b) It 100k about the safety of introducing GM-organisms for public services
(c) It is an Indian Government set up organisation
(d) It look for marketing of the useful GM products for public services

Q14. Which of the following is/are NOT the way(s) to introduce alien DNA into the host cell?
(A) Using vectors like *Agrobacterium tumifaciens*
(B) Injecting directly into the nucleus of animal cell
(C) Using ethylene dibromide
(D) Using vectors like retroviruses
(E) Using biolistics or gene gun

Choose the **correct** answer from the options given below:
(a) (C) and (D) only
(b) (A) and (E) only
(c) (B) only
(d) (C) only

Q15. Limit of particulate size according to Central Pollution Control Board which can cause great harm to human being is:
(a) 2.5 micrometer or less diameter (PM 2.5)
(b) 2.5 millimetre
(c) 2.5 centimetre
(d) 25 millimetre

Q16. The first isolated restriction endonuclease was:
(a) *BamH I*
(b) *Hind II*
(c) *EcoR I*
(d) *Hind III*

Q17. The Mediterranean orchid *Ophrys* employs 'sexual deceit' mechanism to get pollination done by
(a) Fruit fly
(b) Wasp
(c) Species of bee
(d) Butterfly

Q18. Homologous structures have:
(a) Similar origin and dissimilar function.
(b) Dissimilar origin but similar function.
(c) Structurally as well as functionally similar.
(d) Normally non-functional.

Q19. The large holes in 'Swiss cheese' are due to -
(a) Production of a large amount of carbon dioxide by a bacterium
(b) A machine
(c) Methane gas produced by a bacterium
(d) A fungus that release a lot of gases during its metabolic activities

Q20. Match **List-I** with **List-II**:

List-I		**List-II**	
(A)	Ovulatory phase	(I)	Proliferative phase
(B)	Follicular phase	(II)	Both LH and FSH attain a peak level
(C)	Luteal phase	(III)	Breakdown of endometrial lining of uterus and its blood vessels
(D)	Menstrual phase	(IV)	Secretory phase

Choose the **correct** answer from the options given below:
(a) (A)-(IV), (B)-(II), (C)-(III), (D)-(I)
(b) (A)-(II), (B)-(IV), (C)-(I), (D)-(III)
(c) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
(d) (A)-(II), (B)-(I), (C)-(IV), (D)-(III)

Q21. Identify the statements which are true for both RNA and DNA.
(A) Two nucleotides are linked through 3'-5' phosphodiester linkage.
(B) Nitrogenous bases are linked to the sugar moiety.
(C) Additional -OH is present at 2'-position in the sugar.
(D) 5-methyl uracil is present.

Choose the **correct** answer from the options given below:
(a) (A), (B) and (C) only.
(b) (A), (B) and (D) only.
(c) (A) and (B) only.
(d) (B) and (C) only.

Q22. Match **List-I** with **List-II**:

List-I		**List-II**	
(A)	Heroin	(I)	*Atropa belladonna*
(B)	Marijuana	(II)	*Erythroxylum coca*
(C)	Cocaine	(III)	*Cannabis sativa*
(D)	Hallucinogenic properties	(IV)	*Papaver somniferum*

Choose the **correct** answer from the options given below:
(a) (A)-(IV), (B)-(II), (C)-(III), (D)-(I)
(b) (A)-(IV), (B)-(III), (C)-(II), (D)-(I)
(c) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)
(d) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)

Q23. Which of the following bond in DNA strand is broken by the action of restriction enzyme?
(a) Phosphodiester bond only
(b) N-glycosidic bond only
(c) Hydrogen bond only
(d) Phospho-diester as well as hydrogen bond

Q24. What is the correct sequence of steps involved in treating SCID (ADA deficiency) through Biotechnology.

(A) A functional ADA-cDNA introduced in lymphocytes.
(B) Lymphocytes returned to the body of the patient.
(C) Lymphocytes from the blood of the patient are grown in culture outside the body.
(D) Periodic infusion of such genetically engineered lymphocytes required.

Choose the **correct** answer from the options given below:
(a) (C), (B), (A), (D)
(b) (D), (C), (A), (B)
(c) (C), (A), (B), (D)
(d) (C), (D), (A), (B)

Q25. "Bt toxin gene has been cloned from Bacillus thuringiensis and has been expressed in plants." This in effect created which of the following?
(a) Biopesticide
(b) Biofertiliser
(c) Bio-fortification
(d) Biolistics

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

List-I		**List-II**	
(A)	The primates which were more ape-like	(I)	*Dryopithecus*
(B)	Probably lived in East African grasslands	(II)	*Homo sapiens*
(C)	The primates which were more man-like	(III)	*Ramapithecus*
(D)	First human-like being, the hominid	(IV)	*Australopithecines*
		(V)	*Homo habilis*

Choose the **correct** answer from the options given below:
(a) (A)-(III), (B)-(I), (C)-(V), (D)-(II)
(b) (A)-(II), (B)-(IV), (C)-(I), (D)-(V)
(c) (A)-(I), (B)-(IV), (C)-(III), (D)-(V)
(d) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)

Q27. Water hyacinth can propagate vegetatively through:
(a) Adventitous buds
(b) Rhizome
(c) Offset
(d) Bulbil

Q28. Match **List-I** with **List-II**:

List-I		**List-II**	
(A)	Gobar gas	(I)	Citric acid
(B)	*Aspergillus niger*	(II)	Methane
(C)	*Saccllaromyces cerevisiae*	(III)	Antibiotic
(D)	*Penicillum notatum*	(IV)	Ethanol

Choose the **correct** answer from the options given below:
(a) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)
(b) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)
(c) (A)-(II), (B)-(I), (C)-(IV), (D)-(III)
(d) (A)-(I), (B)-(III), (C)-(II), (D)-(IV)

Q29. Nowadays, biofertilisers are available in the market. Select the correct statements regarding biofertilisers given below:

(A) Biofertilisers increase the soil fertility.
(B) Biofertilisers kill the pathogenic microbes
(C) Biofertilisers increase the iron content in the soil
(D) Biofertilisers increase the crop production.
(E) Excess use of biofertilisers causes water and soil pollution.

Choose the **correct** answer from the options given below:
(a) (A) and (C) only
(b) (D) and (E) Only
(c) (B) and (C) only
(d) (A) and (D) only

Q30. Match **List-I** with **List-II**:

List-I (Molecule)		**List-II (Function)**	
(A)	DNA ligase	(I)	snRNAs
(B)	RNA polymerase II	(II)	Discontinuous synthesis
(C)	RNA polymerase III	(III)	28S RNA
(D)	RNA polymerase I	(IV)	hn RNA

Choose the **correct** answer from the options given below:
(a) (A)-(I), (B)-(II), (C)-(IV), (D)-(III)
(b) (A)-(II), (B)-(IV), (C)-(I), (D)-(III)
(c) (A)-(II), (B)-(I), (C)-(IV), (D)-(III)
(d) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

Q31. Which of the following is NOT an Ex-situ conservation?
(a) Zoological parks
(b) Wildlife safari parks
(c) Wildlife sanctuaries
(d) Cryopreservation techniques

Q32. Which of the following does not show symbiotic association?
(a) Fungi
(b) Protozoan
(c) Algae
(d) Mycorrhiza

Q33. Motile asexual reproductive units are called _____.
(a) Conidia
(b) Zoospores
(c) Buds
(d) Gametes

Q34. Which of the following material takes longer time for decomposition?
(a) Jute
(b) Cotton
(c) Paper
(d) Bones

Q35. Following are the steps involved in Hershey and Chase experiment to prove DNA as the genetic material.
(A) Blending the cells
(B) Centrifugation of the cells was performed
(C) Growing some bacteriophages on a medium containing radioactive phosphorus and other on radioactive sulfur.
(D) Cells were infected with virus
(E) Observation and established the inference.

Choose the **correct** answer from the options given below:
(a) (A), (D), (B), (C), (E)
(b) (B), (C), (A), (E), (D)
(c) (D), (B), (C), (E), (A)
(d) (C), (D), (A), (B), (E)

Q36. The protoplast is used in somatic hybridisation. It is:
(a) An animal cell
(b) A plant cell with cell wall
(c) A plant cell without cell wall
(d) Other name of protoplasm

Q37. Given below are some statements which should be followed to avoid sexually transmitted infections. Which of the following are correct?
(A) Avoid sex with unknown partners/ multiple partners.
(B) Always use medicated IUDs during coitus.
(C) In case of doubt always consult a qualified doctor and get complete treatment if diagnosed infection.
(D) Adopt natural methods of contraception during coitus.
(E) Use of oral pills before coitus.

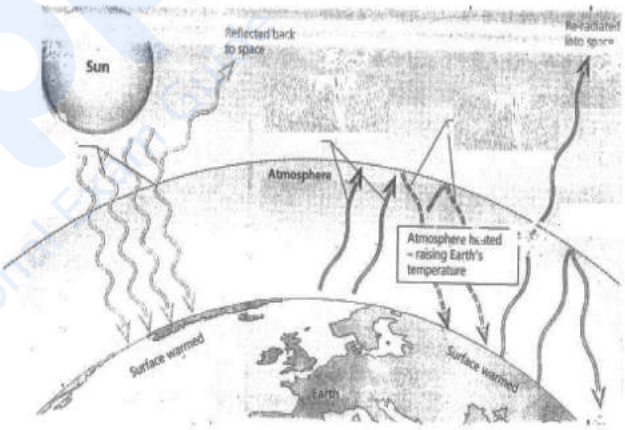
Choose the **correct** answer from the options given below:
(a) (B), (C) and (D) Only
(b) (A) and (C) Only
(c) (A) and (E) Only
(d) (B) and (D) Only

Q38. Hardy - Weinberg principle states that:
(a) Allele frequencies in a population are stable and is constant from generation to generation
(b) Allele frequencies in a population are unstable and is constant from generation to generation.
(c) Allele frequencies in a population are stable and is not-constant from generation to generation.
(d) Allele frequencies in a population are unstable and is not-constant from generation to generation.

Q39. Which of the following equation correctly describes 'Net primary productivity'?
(a) Net primary productivity = Gross primary productivity + Respiratory loss
(b) Net primary productivity = Gross primary productivity - Respiratory loss
(c) Net primary productivity = Respiratory loss - Gross primary productivity
(d) Net primary productivity = Gross primary productivity – S.3econdary productivity

Q40. Which of the following is not a natural method of birth control?
(a) Periodic abstinence
(b) Coitus interruptus
(c) IUDs
(d) Lactational amenorrhea

Direction for the question 41 to 45: **Observe the diagram and answer the question:**



Q41. The shown diagram/ figure represents:
(a) Biomagnification
(b) Greenhouse effect
(c) Ozone depletion
(d) Climate change

Q42. Infrared radiations from Sun:
(a) cannot enter troposphere
(b) can enter troposphere
(c) got captured in stratosphere
(d) compete with UV rays to enter atmosphere

Q43. Reflected infrared radiations from earth surface are not absorbed by:
(a) Clouds
(b) Dust
(c) Oxygen
(d) Green house gases

Q44. Green house gases cause:
(a) Global warming
(b) Depletion of Oxygen
(c) Formation of clouds
(d) Water logging and soil salinity

Q45. Which of the following is **NOT** a green house gas?
(a) CO_2
(b) Methane
(c) Nitrous Oxide
(d) Nitrogen

Direction for the question 46 to 50: **Read the passage and answer the question:**
There are thousands of varieties of rice in India alone. The diversity of rice in India is one of the richest in the world. Basmati rice is distinct for its unique aroma and flavour and 27 documented varieties of Basmati are grown in India. There is reference to Basmati in ancient texts, folklore and poetry, as it has been grown for centuries. Several attempts have also been made to patent uses, products and processes based on Indian traditional herbal medicine, e.g. turmeric, neem. There has been growing realisation of the injustice, inadequate compensation and benefit sharing between developed and developing countries. The Indian Parliament has recently cleared a Bill that takes such issues into consideration, including patent terms emergency provisions and research and development initiative.

Q46. One of the classical example of biopatent controversy is of -
(a) Basmati rice
(b) Rose
(c) Potato
(d) Wheat

Q47. When a multinational company uses bio-resource of a country without proper authorisation and compensation then it is called as:
(a) Resource sharing
(b) Resource hacking
(c) Biopiracy
(d) Biopatenting

Q48. How many varieties of rice India has?
(a) 2,00,000
(b) 27
(c) 1997
(d) 20,000

Q49. Identify the statements explaining biopracy
(A) Unauthorised exploitation of bio-resources of a country
(B) Adequate compensation is given to one country from where bioresource is taken
(C) Exploitation of traditional knowledge to develop modern applications
(D) Equal benefit sharing between developed and developing nations

Choose the **correct** answer from the options given below:
(a) (A) and (B)
(b) (A) and (C)
(c) (B) and (C)
(d) (A) and (D)

Q50. The bill cleared by Indian Parliament to check unauthorised exploitation of bioresources and traditional knowledge of bio-resources is
(a) Bill of Patent Rights
(b) Indian Patents Bill
(c) Indian Biopiracy Bill
(d) Bill of Traditional Knowledge of Bio-resources