QUESTION BANK
CLASS XII
SUBJECT : BIOLOGY
(Session 2020-21)

OBJECTIVE QUESTIONS

CH 2, **Sexual Reproduction in Flowering Plants**

Q1. What is the function of filiform apparatus in an angiospermic embryo sac?

(a) Brings about opening of the pollen tube

(b) Guides the pollen tube into a synergid

(c) Prevents entry of more than one pollen tube into a synergid

(d) None of these

Q2. The female gametophyte of a typical dicot at the time of fertilisation is

(a) 8 – celled

(b) 7 – celled

(c) 6 – celled

(d) 5 – celled

Q3. Male and female flowers are present on different plants (dioecious) to ensure xenogamy, in

(a) papaya

(b) bottle gourd

(c) maize

(d) all of these.

Q4. Feathery stigma occurs in

(a) pea

(b) wheat

(c) Datura

(d) Caesalpini

Q5. Which of the following is not a water pollinated plant ?

(a) Zostera

(b) Vallisneria

(c) Hydrilla

(d) Cannabis

Q6. Spiny or sticky pollen grains and large, attractively coloured flowers are associated with

(a) hydrophily

(b) entomophily

(c) ornithophily

(d) anemophily

Q7 .Endospermic seeds are found in

(a) castor

(b) barley

(c) coconut

(d) all of these

Q8. In albuminous seeds, food is stored in _____ and in non albuminous seeds, it is stored in _____.

(a) endosperm, cotyledons

(b) cotyledons, endosperm

(c) nucellus, cotyledons

(d) endosperm, radicle

Q9. Persistent nucellus is called as _____ and is found in _____.

(a) perisperm, black pepper

(b) perisperm, groundnut ‘

(c) endosperm, black pepper

(d) endosperm groundnut

Q10. Indentify the wrong statement regarding post-fertilisation development.

(a) The ovary wall develops into pericarp.

(b) The outer integument of ovule develops into tegmen.

(c) The fusion nucleus (triple nucleus) develops into endosperm.

(d) The ovule develops into seed

Q11. During microsporogenesis, meiosis occurs in

(a) endothecium

(b) microspore mother cells

(c) microspore tetrads

(d) pollen grains

Q12. The stamens represent

(a) microsporangia

(b) male gametophyte

(c) male gametes

(d) microsporophylls.

Q13. The anther wall consists of four wall layers where

(a) tapetum lies just inner to endothecium

(b) middle layers lie between endothecium and tapetum

(c) endothecium lies inner to middle layers

(d) tapetum lies next to epidermis

Q14. The innermost layer of anther is tapetum whose function is

(a) dehiscence

(b) mechanical

(c) nutrition

(d) protection.

Q15. The cells of endosperm have 24 chromosomes. What will be the number of chromosomes in the gametes ?

(a) 8

(b) 16

(c) 23

(d) 24

Ch. 3, Human Reproduction

Q1. Ovulation in the human female normally takes place during the menstrual cycle

(a) at the mind secretory phase

(b) just before the end of the secretory phase

(c) at the beginning of the proliferative phase

(d) at the end of the proliferative phase

Q2. After ovulation Graffian follicle regresses into

(a) corpus atresia

(b) corpus callosum

(c) corpus luteum

(d) corpus albicans

Q3. Immediately after ovulation, the mammalian egg is covered by a membrane known as

(a) chorion

(b) zona pellucida

(c) corona radiata

(d) vitelline membrane.

Q4. Which one of the following events is correctly matched with the time period in a normal menstrual cycle ?

(a) Release of egg : 5 th day

(b) Endometrium regenerates : 5 – 10 days

(c) Endometrium secretes nutrients for implantation: 11 – 18 days

(d) Rise in progesterone level : 1 – 15 days

Q5. If mammalian ovum fails to get fertilised, which one of the following is unlikely ?

(a) Corpus luteum will distintegrate.

(b) Progesterone secretion rapidly declines.

(c) Estrogen secretion increases.

(d) Primary follicle starts developing.

Q6. Which part of the sperm plays an important role in penetrating the egg membrane ?

(a) Allosome

(b) Tail

(c) Autosome

(d) Acrosome

Q7. In oocyte secondary maturation occurs in

(a) ovary

(b) abdominal cavity

(c) Fallopian tube

(d) uterus.

Q8. Preparation of sperm before penetration of ovum is

(a) spermiation

(b) cortical reaction

(c) spermiogenesis

(d) capacitation.

Q9. Mature Graafian follicle is generally present in the ovary of a healthy human female around

(a) 5-8 day of menstrual cycle

(b) 11-17 day of menstrual cycle

(c) 18-23 day of menstrual cycle

(d) 24-28 day of menstrual cycle.

Q10. Acrosomal reaction of the sperm occurs due to

(a) its contact with zona pellucida of the ova

(b) reactions within the uterine environment of the female

(c) reactions within the epididymal environment of the male

(d) androgens produced in the uterus

Q11. Which of the following hormones is not secreted by human placenta ?

(a) hCG

(b) Estrogens

(c) Progesterone

(d)LH

Q12. Morula is a developmental stage

(a) between the zygote and blastocyst

(b) between the blastocyst and gastrula

(c) after the implantation

(d) between implantation and parturition.

Q13. Identify the odd one from the following

(a) Labia minora

(b) Fimbriae

(c) Infundibulum

(d) Isthimus

Q14. The nutritive cells found in seminiferous tubules are

(a) Leydig's cells

(b) atretic follicular cells

(c) Sertoli cells

(d) chromaffin cells.

Q15. Seminal plasma in humans is rich in

(a) fructose and calcium but has no enzymes

(b) glucose and certain enzymes but

humans, at the end of the first meiotic division, the male germ cells differentiate into the

(a) spermatids

(b) spermatogonia

(c) primary spermatocytes

(d) secondary spermatocytes.

Ch-4, Reproductive Health

Q1. The technique called Gamete Intra Fallopian Transfer (GIFT) is recommended for those females

(a) who cannot produce an ovum

(b) who cannot retain the foetus inside uterus

(c) who cannot provide suitable environment for fertilisation

(d) all of these

Q2. Which of these can be used to cure infertility in couples where male partner has very low sperm count ?

(a) IUD

(b) GIFT

(c) IUI

(d) None of these

Q3. The method of directly injecting a sperm into ovum in assisted reproductive technology is called

(a) GIFT

(b) ZIFT

(c) ICSI

(d) ET

Q4. Increased IMR and decreased MMR in a population will

(a) cause rapid increase in growth rate

(b) result in decline in growth rate

(c) not cause significant change in growth rate

(d) result in an explosive population.

Q5 . Intensely lactating mothers do not generally conceive due to the

(a) suppression of gonadotropins

(b) hypersecretion of gonadotropins .

(c) suppression of gametic transport

(d) suppression of fertilisation.

Q6. Which of the following cannot be detected in a developing foetus by

amniocentesis ?

(a) Jaundice

(b) Down’s syndrome

(c) Cystic fibrosis

(d) Colourblindness

Q7. Which of the following is not a characteristic of an ideal contraceptive ?

(a) User-friendly

(b) Irreversible

(c) Easily available

(d) Least side-effects

Q8. Progesterone pill helps in preventing pregnancy by not allowing

(a) ova formation

(b) fertilisation

(c) implantation

(d) none of these.

Q9 . Cu ions released from copper releasing intrauterine devices (IUDs)

(a) prevent ovulation

(b) make uterus unsuitable for implantation

(c) decrease phagocytosis of sperms

(d) suppress sperm motility.

Q10. In vitro fertilisation is a technique that involves transfer of which one of the following into the fallopian tube ?

(a) Embryo only, upto 8 cell stage

(b) Either zygote or early embryo upto 8 cell stage

(c) Embro of 32 cell stage

(d) Zygote only

Ch 5, Principals of Inheritance and Variations

Q1. If a genetic disease is transferred from a phenotypically normal but carrier female to only some of the male progeny, the disease is

(a) autosomal dominant

(b) autosomal recessive

(c) sex-linked dominant

(d) sex-linked recessive

Q2. In sickle cell anaemia glutamic acid is replaced by valine. Which one of the following triplets codes for valine ?

(a) GGG

(b) A AG

(c) G A A

(d) GUG

Q3. ZZ/ZW type of sex determination is seen in

(a) platypus

(b) snails

(c) cockroach

(d) peacock

Q4 Which of the following will not result in variations among siblings ?

(a) Independent assortment of genes

(b) Crossing over

(c) Linkage

(d) Mutation

Q5. Mendel's Law of independent assortment holds good for genes situated on the

(a) non-homologous chromosomes

(b) homologous chromosomes

(c) extra nuclear genetic element

(d) same chromosome.

Q6. Occasionally, a single gene may express more than one effect. The phenomenon is called
(a) multiple allelism
(b) mosaicism
(c) pleiotropy
(d) polygeny.

Q7. What will be the distribution of phenotypic features in the first filial generation after a cross between a homozygous female and a heterozygous male for a single locus ?
(a) 3 : 1
(b) 1 : 2 : 1
(c) 1 : 1
(d) None of these

Q8.A couple has six daughters. What is the possibility of their having a girl next time?
(a) 10 %
(b) 50 %
(c) 90 %
(d) 100 %

Q9. Select the incorrect statement regarding pedigree analysis.
(a) Solid symbols show unaffected individuals.
(b) Proband is the person from which case history starts.
(c) It is useful for genetic counsellors.
(d) It is an analysis of traits in several generations of a family.

Q10. Conditions of a karyotype 2n±l and 2n + 2 are called
(a) aneuploidy
(b) polyploidy
(c) allopolyploidy
(d) monosomy.

Q11. Klinefelter’s syndrome is characterised by a karyotype of
(a) XYY
(b) XO
(c) XXX
(d) XXY

Q 12. If both parents are carriers for thalassaemia, which is an autosomal recessive disorder, what are the chances of pregnancy resulting in an affected child ?

(a) 25 %
(b) 100 %
(c) No chance
(d) 50 %

Ch 6, Molecular basis of Inheritance

Q1. In a DNA strand the nucleotides are linked together by
(a) glycosidic bonds
(b) phosphodiester bonds
(c) peptide bonds
(d) hydorgen bonds.

Q2. The human chromosome with the highest and least number of genes in them are respectively
(a) chromosome 21 and Y
(b) chromosome 1 and X
(c) chromosome 1 and Y
(d) chromosome X and Y.

Q3. Which of the following steps in transcription is catalysed by RNA polymerase ?
(a) Initiation
(b) Elongation
(c) Termination
(d) All of the above

Q4Control of gene expression takes place at the level of
(a) DNA-replication
(b) transcription
(c) translation
(d) none of the above.

Q5.The amino acid attaches to the tRNA at its
(a) 5'- end
(b) 3' – end
(c) anticodon site
(d) DHUloop.

Q6.Find out the wrong statement about heterochromatin,
(a) It is densely packed
(b) It stains dark.
(c) It is transcriptionally active.
(d) It is late replicating.

Q7.Some amino acids are coded by more than one codon, hence the genetic code is
(a) overlapping

(b) degenerate
(c) wobbled
(d) unambiguous.

Q8.The mutations that involve addition, deletion or substitution of a single pair in a gene are referred to as
(a) point mutations
(b) lethal mutations
(c) silent mutations
(d) retrogressive mutations.

Q9.The process of copying genetic information from one strand of DNA to RNA is termed as _____ .
(a) replication
(b) transcription
(c) translation
(d) reverse transcription

CH-8, **Human Health and Disease**
Q1.'Smack' is a drug obtained from the
(a) latex of Papever somniferum
(b) leaves of Cannabis saliva
(c) flowers of Datura
(d) fruits of Erythroxyl coca.

Q2The substance produced by a cell in viral infection that can protect other cells from further infection is
(a) serotonin
(b) colostrum
(c) interferon
(d) histamine.

Q3. Antibodies present in colostrum which protect the new born from certain diseases is of
(a) IgG type
(b) IgA type
(c) IgD type
(d) IgE type.

Q4.Tobacco consumption is known to stimulate secretion of adrenaline and noradrenaline.

The component causing this could be

(a) nicotine

(b) tannic acid

(c) curaimin

(d) catechin.

Q5. Which of the following is not a lymphoid tissue ?
(a) Spleen
(b) Tonsils
(c) Pancreas
(d) Thymus

Q6. Humoral immunity is associated with
(a) T-cells
(b) B-cells
(c) macrophages
(d) both (a) and (b)

Q7. Injection of antitoxin in tetanus confers which type of immunisation ?
(a) Active immunisation
(b) Passive immunisation
(c) Auto-immunisation
(d) Humoral immunisation

Q8. Elephantiasis, a chronic inflammation that results in gross deformities is caused by
(a) Ascaris
(b) E.coli
(c) Wuchereria
(d) Trichophyton

Q9. Which compound is formed by acetylation of morphine ?
(a) Heroin
(b) Cocaine
(C) Tobacco.
(d) Marijuana

Q10. Charas and ganja are the drugs which affect
(a) respiratory system
(b) cardiovascular system
(c) digestive system
(d) nervous system.

Q11, An auto-immune disease is
(a) SCID
(b) rheumatoid arthritis
(c) myasthenia gravis
(d) both (b) and (c).

Q12. The site where lymphocytes interact with antigens and proliferate to become effector cells are
(a) spleen and lymph nodes
(b) bone marrow and thymus
(c) Peyer’s patches and tonsils
(d) both (a) and (c).

Q13. Cancer cells do not exhibit the property of
(a) generating tumors
(b) metastasis
(c) contact inhibition
(d) less number of mitochondrial^cristae.

CH-10, Microbes in Human Welfare

Q1Azolla pinnata has been found to be an important biofertiliser for paddy crops. This quality is due to the presence of
(a) N_2 fixing bacteria
(b) N_2 fixing cyanobacteria
(c) mycorrhizae
(d) all of these

Q2Which of the following is a non-symbiotic biofertiliser ?
(a) VAM
(b) Azotobacter
(c) Anabaena
(d) Rhizobium

Q3 Wastewater treatment generates a large quantity of sludge, which can be treated by
(a) anaerobic digesters
(b) floe
(c) chemicals
(d) oxidation pond

Q4. BOD of wastewater is estimated by measuring the amount of
(a) total organic matter
(b) biodegradable organic matter
(c) oxygen evolution
(d) oxygen consumption

Q5. Statins used for lowering blood cholesterol level are extracted from
(a) algae
(b) bacteria
(c) viruses
(d) yeast

Q6, Monascus purpureus is a yeast commercially used in the production of
(a) citric acid
(b) ethanol
(c) blood cholesterol lowering statins
(d) streptokinase for removing clots from blood vessels

Q7. The masses of bacteria held together by slime and fungal filaments to form mesh-like structures are called as
(a) primary sludge
(b) floes
(c) activated sludge
(d) anaerobic sludge

Q8. Methanogens, growing anaerobically on cellulosic material produce
(a) methane
(b) methane and carbon dioxide
(c) methane and hydrogen
(d) methane, carbon dioxide and hydrogen

Q9. Dragonflies are used to get rid of
(a) mosquitoes
(b) aphids
(c) butterfly caterpillars
(d) both (a) and (b)

Q10. A microbial biocontrol agent that can be used to control butterfly caterpillars is
(a) Trichoderma polysporum
(b) Bacillus thuringiensis
(c) Streptococcus
(d) mycorrhiza

Q11. Baculoviruses (Nucleopolyhedrovirus) do not show
(a) host specificity
(b) narrow spectrum applications
(c) effects on non-target pathogens
(d) utility in IPM programme

Ch-11,Principles of Biotechnology

Q1. Enzyme ‘Taq polymerase’ used in PCR, has been isolated from bacterium
(a) Agrobacterium tumefaciens
(b) Thermus aquaticus
(c) Streptomyces albus
(d) Escherichia coli

Q2. .Which of the following is not used to transfer the recombinant DNA into the host ?
(a) Micro-injection method
(b) Gene gun method
(c) Bioreactors
(d) Disarmed pathogen vectors

Q3.A device in which large volume of living cells are cultured in order to get a specific product is called
(a) PCR
(b) agitator

(c) bioreactor
(d) assimilator.

Q4. An enzyme catalysing the removal of nucleotides from the ends of DNA is
(a) endonuclease
(b) exonuclease
(c) DNA ligase
(d) Hind II.

Q5. The term ‘molecular scissors’ refers to
(a) recombinant DNA
(b) restriction enzymes
(c) Taq polymerase
(d) palindromic nucleotide sequences.

Q6.The letter ’R’ in EcoRI is derived from
(a) the name of genus
(b) the name of strain
(c) the name of species
(d) the term ‘restriction1

Q7. Which of the following tools of recombinant DNA technology is incorrectly paired with its use ?
(a) EcoRI – Production of sticky ends
(b) DNA ligase – Multiplication of rDNA molecules
(c) ori – copy number
(d) Selectable marker – Identification of transformants

Q8. Which one of the following characteristic is generally not preferred for a cloning vector ?
(a) An origin of replication
(b) An antibiotic resistance marker
(c) Multiple restriction sites
(d) A high copy number

Q9. In agarose gel electrophoresis, DNA molecules are
separated on the basis of their
(a) charge only
(b) size only
(c) charge to size ratio
(d) all of the above.

Q10 While isolating DNA from bacteria, which of the following enzymes is not used ?
(a) Lysozyme
(b) Ribonuclease
(c) Deoxyribonuclease
(d) Protease

Q11. Significance of ‘heat shock’ method in bacterial transformation is to facilitate
(a) binding of DNA to the cell wall
(b) uptake of DNA through membrane transport proteins

(c) uptake of DNA through transient pores in the bacterial cell wall
(d) expression of antibiotic resistance gene.

Q12. Which of the following bacteria is used as a vector for plant genetic engineering ?
(a) Agrobacterium tumefacines
(b) Bacteriophages
(c) Thermus aquaticus
(d) Pyrococcus furiosus

Chapter 12, Biotechnology and its Applications

Q1, GEAC stands for
(a) Genome Engineering Action Committee
(b) Ground Environment Action Committee
(c) Genetic Engineering Approval Committee
(d) Genetic and Environment Approval Committee.

Q2, α – 1 – antitrypsin is
(a) an antacid
(b) an enzyme
(c) used to treat arthritis
(d) used to treat emphysema.

Q3.The site of production of ADA in the body is
(a) erythrocytes
(b) lymphocytes
(c) blood plasma
(d) osteocytes.

Q4. Golden rice is
(a) a variety of rice grown along the yellow river in China
(b) long stored rice having yellow colour tint
(c) a transgenic rice having gene for β -carotene
(d) wild variety of rice with yellow coloured grains.

Q5. Bt toxins are
(a) intracellular lipids 18.
(b) intracellular crystalline proteins
(c) extracellular crystalline proteins
(d) intracellular polysaccharides

Q6. Bt toxin protein crystals present in bacterium Bacillus thuringiensis, do not kill the bacteria themselves because
(a) bacteria are resistant to the toxin
(b) toxins occur as inactive protoxins in bacteria
(c) bacteria enclose toxins in a special sac

Q7.Rules of conduct that may be used to regulate our activities in relation to the biological world is called
(a) bioethics
(b) biowar
(c) biopatent
(d) biopiracy.

Q8. Biopiracy means
(a) use of bippatents
(b) thefts of plants and animals
(c) stealing of bioresources
(d) exploitation of bioresources without authentic permission.

Q9. Which of the following genes were introduced in cotton to protect it from cotton bollworms ?
(a) Cry Ac and CryAb
(b) Bt Ac and Bt ab
(c) Cry lAc and Cry llAb
(d) Nif genes

Q10.RNA interference involves
(a) synthesis of cDNA and RNA using reverse transcriptase
(b) silencing of specific mRNA due to complementary RNA
(c) interference of RNA in synthesis of DNA
(d) synthesis of mRNA from DNA.

Q11.A genetic disorder can be cured through
(a) rDNA technology
(b) embryo transfer
(c) gene therapy
(d) all of these.

Q12. It is a single stranded DNA or RNA, tagged with a radioactive molecule and is used to detect mutated genes.
(a) RNAi
(b) Probe
(c) Plasmid
(d) Primer Technique used to detect the DNA in a clone is

CH- 13, Organisms and Population

Q1. The prickly pear cactus became unusually abundant after its introduction in Australia, because it
(a) had no coevolved herbivores
(b) formed new mycorrhizal association
(c) lost its thorns
(d) all of these.

Q2. Why you never see cattle or goats browsing on weed Calotropis ?
(a) The plant produces highly poisonous tannins.
(b) The plant produces quinine which is bitter in taste.

(c) The plant produces poisonous cardiac glycosides.
(d) The plant bears prickles.
Q3. Competitive exclusion principle stating that inferior species is eliminated eventually after prolonged competition was given by
(a) Allen
(b) Pearl-Verhulst
(c) Gause
(d) Darwin.

Q4. Two different species cannot live for long duration in the same niche or habitat. This law is called
(a) Allen's law
(b) Glogerrule
(c) Competitive exclusion principle
(d) Weisman's theory.

Q5. An interaction between two individuals where one is benefitted while the other is neither benefitted nor harmed is called as
(a) predation
(b) symbiosis
(c) amensalism
(d) commensalism.

Q6. The interdependent evolution of flowering plants and pollinating insects together is known as
(a) mutualism
(b) co-evolution
(c) commensalism
(d) co-operation.

Q7. Niche overlap indicates
(a) mutualism between two species
(b) active cooperation between two species
(c) two different parasites on the same host
(d) sharing of one or more resources between the two species.

Q8.What parameters are used for tiger census in our country's national parks and sanctuaries ?
(a) Pug marks only
(b) Pug marks and faecal pellets
(c) Faecal pellets only
(d) Actual head counts

Q9.Which of the following would necessarily decrease the density of a population in a given habitat ?
(a) Natality > mortality
(b) Immigration > emigration

(c) Mortality and emigration
(d) Natality and immigration

Q10. A protozoan reproduces by binary fission. What will be the number of protozoans in its population after six generations ?
(a) 128
(b) 24
(c) 64
(d) 32

Q11. Organisms that can tolerate a wide range of salt concentration are termed as
(a) stenosaline
(b) stenohaline
(c) euryhaline
(d) eurysaline.

Q12. Water holding capacity of the soil depends upon
(a) chemical composition of soil
(b) particle size of soil
(c) aggregation of soil particles
(d) all of these.

Q13. An animal that can survive at 10°C and 40°C both, can be placed under the category of
(a) conformers
(b) regulators
(c) migratory organisms
(d) modifiers.

Q14. Organisms that can maintain a constant internal temperature are called as
(a) homoiothermic
(b) poikilothermic
(c) oligothermic
(d) heterothermic.

Q15. Which of the following equations correctly represents Verhulst-Pearl logistic growth ?
(a) $dN/dt = rN(K-NK)$
(b) $dN/dt = rNK$
(c) $dN/dt = N(K-N)K$
(d) $dN/dt = r(K-N)K$

CH-15, Biodiversity and Conesrvation

Q1. What is common to the seed banks, orchards, tissue culture and cryopreservation ?
(a) All are in situ conservation methods.

(b) All are ex situ conservation methods.
(c) All require ultramodern equipment and very large space.
(d) All are methods of conservation of extinct organisms.

Q2. Western ghats have a greater number of amphibian species than the Eastern ghats. What kind of diversity does it represent ?
(a) Species diversity
(b) Genetic diversity
(c) Ecological diversity
(d) None of these

Q3. For frugivorous birds and mammals in the tropical forests of different continents, the slope is found to be
(a) 0.6
(b) 1.3
(c) 1.15
(d) 1.7

Q4. The extinction of passenger pigeon was due to
(a) increased number of predatory birds
(b) over exploitation by humans
(c) non-availability of the food

Q5. Which of the following statements is correct ?
(a) Parthenium is an endemic species of our country.
(b) Arican catfish is not a threat to indigenous catfishes.
(c) Steller's sea cow is an extinct animal.
(d) Lantana is popularly known as carrot grass.

Q6.The active chemical drug reserpine is obtained from
(a) Datura
(b) Rauwolfia
(c) Atropa
(d) Papaver.

Q7.Who confirmed communities with more species tend to be more stable than those with less species ?
(a) Alexander von Humboidt
(b) David Tilman
(c) Paul Ehrlich
(d) Edward Wilson

Q8.Rivert popper hypothesis was given by
(a) Paul Ehrlich
(b) Alexander von Humboldt
(c) David Tilman
(d) Robert May.

Q9. Organisation responsible for maintaining Red Data Book is
(a) IUCN

(b) WWF
(c) CITES
(d) IBWL.

Q10.Interodction of Nile Perch in lake Victoria of South Africa resulted in
(a) excessive growth of water weeds
(b) elimination of water weeds
(c) elimination of many species of cichlid fish
(d) excessive growth of cichlid fish.