BRAINWARE UNIVERSITY

Term End Examination 2020 - 21

Programme – Master of Science in Biotechnology

Course Name – Plant Biotechnology

Course Code - MBT305A

Semester / Year - Semester III

Time allotted : 75 Minutes | Full Marks : 60

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 60=60

1. *(Answer any Sixty)*

(i) Name the term given to the ability of single cells to divide and produce all the differentiated cell in the organism?

a) Unipotent
b) Pluripotent
c) Multipotent
d) Totipotency

(ii) Mark the INCORRECT statement about agar, a gelling agent in plant tissue culture medium?

a) Not digested by plant enzymes
b) It does not use in microprapogation work
c) It does not react with media constituents
d) Remain stable at incubation temperature

(iii) Which one of them is NOT the main effect of polyamines in the tissue culture system?

a) Promotion of tuber and bulb formation
b) Adventitious root formation
c) Promotion of shoot formation
d) Somatic embryogenesis

(iv) In plant tissue culture, what is the term ORGANOGENESIS means?

a) Formation of callus culture
b) Formation of root & shoot from callus culture
c) Genesis of organ
d) None of these

(v) Who is called as the Father of Plant Tissue Culture?

a) Gottlieb Haberlandt.
b) Watson.
c) Barbara.
d) Crick

(vi) The culture of excised radicle tips of aseptically germinated seeds is termed as _____ culture.

a) anther.
b) root.
c) pollen.
d) embryo.

(vii) Cellular totipotency was discovered by

a) Stewart.
b) Skoog and Miller
c) Harrison
d) Gautheret.

(viii) Synthetic seed is produced by encapsulating somatic embryo with

a) sodium chloride
b) sodium alginate
c) Artificial meistem
d) None of these

(ix) DMSO (Dimethyl sulfoxide) is used as

a) Gelling agent
b) alkaylating agent
c) Chelating agent
d) Cryoprotectant

(x) The most widely used chemical for protoplast fusion, as fusogens, is

a) Manitol
b) Sorbitol
c) Mannol
d) Poly ethylene glycol (PEG)

(xi) Cybrids are produced by

a) Fusion of two different nuclei from two different species
b) Fusion of two same nuclei from same species
c) Nucleus of one species but cytoplasm from both the parent species
d) None of these

(xii) Part of plant used for culturing is called

a) Scion
b) Explant
c) Stock
d) Callus

(xiii) Growth hormone producing apical dominance is

a) Auxin.
b) Gibberellin.
c) Ethylene.
d) Cytokinin.

(xiv) Which of the following plant cell will show totipotency?

a) Xylem vessels
b) Sieve tube
c) Meristem
d) Cork cells

(xv) Which of the following is NOT the feature of plant cells?

a) Presence of centrioles
b) The cell wall outside the cell membrane
c) Cell-cell communication through plasmodesmata
d) Cell-cell communication through plasmodesmata

(xvi) How many types of vector systems are used in eukaryotic plants?

a) 1
b) 2
c) 3
d) 4

(xvii) The size of the T-DNA is around _____

a) 5 – 10 kb
b) 10 – 20 kb
c) 15 – 30 kb
d) 25 – 30 kb

(xviii) What is the function of onc genes in T-DNA?

a) Tumour suppressing potential
b) Tumour inducing potential
c) Either tumour inducing or suppressing depending on the conditions
d) Act as replicative genes

(xix) Which of the plant growth regulators are produced by TDNA?

a) Salicyclic acid
b) Cytokinin

c) Cytokinin and Auxin
d) Jasmonic Acid

(xx) If gene of interest is inserted into protoplasts but the transformation is not stable, then it is called as _____ expression systems.

a) permanent
b) temporary
c) transient
d) unstable

(xxi) 35S promoter is obtained from _____

a) Tobacco mosaic virus
b) Cauliflower mosaic virus
c) Agrobacterium
d) Arabdopsis

(xxii) Baciullus thuringiensis is used for the production of toxins which can be used as _____

a) insecticides
b) pesticides
c) germicides
d) fungicides

(xxiii) The ability of cells to take up DNA fragments from surrounding is called

a) transfection.
b) transduction.
c) transformation.
d) conjugation.

(xxiv) Which of the following chemical enhances vir gene expression

a) cyaniding.
b) glutennin.
c) acetosyringone
d) dextran

(xxv) Chemicals used for gene transfer methods include

a) poly ethylene glycol
b) CaCl2
c) extran
d) All of these

(xxvi) The transformation method that uses tungsten or gold particle coated with DNA accelerated at high velocity is called

a) Acceleration method
b) High velocity method

c) Particle gun delivery method
d) DNA particle delivery method

(xxvii) The method widely used for transforming invitro animal cell cultures that uses lipid vescicles or liposomes.

a) lipotransformation
b) liposome mediated transformation.
c) lipofection
d) lipid mediated DNA transfer

(xxviii) The injection of DNA into developing inflorescence using a hypodermic syringe is called

a) macroinjection.
b) micromanipulator mediated DNA delivery.
c) microfection.
d) microinjection.

(xxix) The organism which is used for gene transfer in higher organism

a) Agrobacterium tumifacience
b) Bacillus thuringenesis
c) Acetobactor.
d) None of these

(xxx) A regulatory body working under MOEF for the release of transgenic crops is

a) TEERI.
b) NBPGR.
c) GEAC.
d) NSC.

(xxxi) Brazzsein (sweetner) is a protein obtained from

a) Pentadiplandra sps.
b) Bacillus sps.
c) Klebsiella
d) Yeast.

(xxxii) C-value in genome represents_____

a) Genetic disorders
b) Phenotypic variation
c) Amount of DNA present in the genome
d) Qualitative traits

(xxxiii) What is the genome size (Kb) of Mustard?

a) 120
b) 100
c) 180
d) 102

(xxxiv) Which of the following equation shows DNA renaturation reaction?

a) Sec 60
b) Cot1/2
c) Tan 30
d) Cot 40

(xxxv) Where does microsatellite DNA present in the chromosomes?

a) Dispersed throughout the chromosome.
b) At the telomere end
c) At the centromere
d) Mainly at metacentric region

(xxxvi) The term genomics was coined by.

a) Thomas Cech.
b) T.H Morgan
c) Craig Venter.
d) Thomas Roder

(xxxvii) International Human Genome project was initiated by:

a) National Institute of Health (NIH)
b) Celera genomics
c) US Department of Energy (DoE)
d) NOH and US DoE

(xxxviii) Small cDNA sequence that represents a unique segment of an active gene is called

a) SNPs.
b) SnRNAs.
c) Contig .
d) ESTs.

(xxxix) The first bacterial genome to be sequenced was that of _____ a mild human pathogen

a) Hemophilus influenzae
b) Lactobacillus
c) Vibrio cholarae
d) Clostridium botulinum

(xl) The process of finding relative location of genes on a chromosome is called

a) gene tracing
b) genome mapping

c) genome walking
d) chromosome walking

(xli) Which of the following is a nucleotide sequence data base?

a) EMBL.
b) SWISS PROT
c) PROSITE.
d) TREMBL

(xlii) Radioactive probe is not required .

a) RAPD
b) AFLP
c) RFLP
d) All of these

(xliii) Name the technique that follow repetitive sequences.

a) AFLP
b) RAPD.
c) AFLP.
d) SSR.

(xliv) Paternity test is best determined by

a) RAPD
b) AFLP
c) SSR
d) non repetitive DNA.

(xlv) The number of base pairs in primer is

a) 43892
b) 3-4.
c) 25-35
d) 100-200

(xlvi) All the statements are true regarding RFLP and RAPD except

a) RAPD is a not quick method compared to RFLP.
b) RFLP is more reliable than RAPD.
c) Species speci?c primers are not required for RAPD .
d) Radioactive probes are not required in RAPD

(xlvii) The length of RAPD primer is

a) 10-15 bp
b) 30-40 bp.
c) 40-50 bp.
d) None of these

(xlviii) Which of the following types of RNA codes for a protein?

a) dsRNA. b) mRNA.

c) rRNA. d) tRNA.

(xlix) Ribosomes are composed of rRNA and what other component?

a) protein. b) carbohydrates.

c) DNA. d) mRNA.

(l) DNA of eukaryotic organisms has several repeating units of short sequences called,

a) random repeats. b) tandem repeats.

c) mini satellites d) All of these

(li) Agrobacterium tumefaciens is a

a) gram (+) bacteria b) gram (-) bacteria

c) fungi d) Yeast

(lii) Opines that are present in crown gall tumour include

a) octopine b) nopaline

c) agropine d) All of these

(liii) Which of the following is true about T DNA?

a) Integration of T DNA can occur at many different, apparently random, sites in the plant nuclear DNA

b) Integration of T DNA occurs only at one specific sites in the plant nuclear DNA

c) Integration of T DNA occurs at two specific sites in the plant nuclear DNA

d) Integration of T DNA occurs at one site that may be random in the plant nuclear DNA

(liv) The technique to distinguish the individuals based on their DNA print patterns is called

a) DNA fingerprinting
b) DNA profiling
c) Molecular fingerprinting
d) All of these

(lv) DNA finger printing relies on

a) Difference in patterns of genes between individuals
b) Difference in order of genes between individuals
c) Difference in junk DNA patterns between individuals
d) All of these

(lvi) DNA profiling is used

a) In Forensic studies and in cases of disputed parentage
b) In pedigree analysis and to study migration pattern
c) To confirm cell line identity
d) All of these

(lvii) The DNA fingerprint pattern of a child is

a) Exactly similar to that of both of the parents
b) 100% similar to the father's DNA print
c) 100% similar to the mother's DNA print
d) 50% bands similar to father and rest similar to mother

(lviii) Which type of molecular marker is most suitable for identification of plants

a) Dominant
b) Co-dominant
c) Recessive
d) None of these

(lix) Which of the following marker is not suitable for health?

a) SSR
b) AFLP
c) RFLP
d) None of these

(lx) Which of the following marker is best utilized in criminal investigation?

a) SSR
b) RAPD
c) Dominant marker
d) None of these