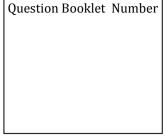
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M. Sc. (Biotechnology) (Fourth Semester) EXAMINATION, 2022-23

ANIMAL CELL CULTURE, MEDICAL AND MICROBIAL BIOTECHNOLOGY

Paper Code									
Μ	В	Т	4	0	0	1			

Time : 1:30 Hours]

Questions Booklet Series

[Maximum Marks : 75

Instructions to the Examinee :

- Do not open the booklet unless you are asked to do so.
- 2. The booklet contains 100 questions. Examinee is required answer 75 to the OMR Answer-Sheet questions in provided and not in the question booklet. All questions carry equal marks.
- Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.

परीक्षार्थियों के लिए निर्देश :

- प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
- प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। सभी प्रश्नों के अंक समान हैं।
- 3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(Remaining instructions on the last page)

(शेष निर्देश अन्तिम पृष्ठ पर)

(Only for Rough Work)

- In 1983 ______ used recombinant DNA technology to produce insulin. This insulin was obtained from a GE microorganism.
 - (A) Eilee Lilly
 - (B) Emily Lilly
 - (C) Eli Lilly
 - (D) Eeli Lilly
- The following are some applications for serological reactions; Choose the correct one :
 - (A) Detection of antibodies
 - (B) Detection of antigens
 - (C) Either, option (A) or (B)
 - (D) Both, options (A) and (B)
- Very effective, less time consuming and at a time so many samples can be detected by _____.
 - (A) ELISA
 - (B) CFT
 - (C) Neutralization
 - (D) Agglutination
- 4. Secondary function of complements are :
 - (A) Haemolysis
 - (B) Phagocytosis
 - (C) Both (A) and (B)
 - (D) None of the above (D

- 5. In enteric fever, the organ lodging maximum count of the organism is
 - (A) Liver
 - (B) Gall bladder
 - (C) Small intestine
 - (D) Large intestine
- 6. All of the following infections are caused

by *E. coli*, except :

- (A) Urinary tract infections
- (B) Septic infections of wounds
- (C) Diarrhoea
- (D) Meningitis
- 7. What does a viral DNA become after being associated with the bacterial chromosome ?
 - (A) Gene
 - (B) Prophage
 - (C) Plaque
 - (D) Plasmid

- Size, shape and mode of arrangements is typical of certain microorganisms. Match appropriately the following organism on their characteristics :
 - (1) Streptococci (a) Comma and S-shaped form
 - (2) Sarcina(b) Gram positive arranged in chains
 - (3) Bacillus(c) Multiples ofanthraciseight
 - (4) Vibrios and (d) Large bacilli,Spirilla rectangular and Gram

positive

- (e) Gram negative cocci
- (f) Rod shapedacid fast
- (A) 1-b; 2-c; 3-f, 4-a
- (B) 1-b; 2-c; 3-d; 4-a
- (C) 1-e; 2-c; 3-d; 4-a
- (D) 1-e; 2-c; 3-f, 4-a

- 9. The target molecules can be the following EXCEPT :
 - (A) receptors
 - (B) enzymes
 - (C) transcription factors
 - (D) free oxygen
- 10. Polysaccharide vaccine from the following is _____.
 - (A) Hib vaccine
 - (B) Hepatitis A vaccine
 - (C) Rabies vaccine
 - (D) Anthrax vaccine
- 11. Among the following cells, which is HGPRT+ and survives in HAT medium ?
 - (A) B cells
 - (B) Myeloma cells
 - (C) Hybrid cells
 - (D) Both (A) and (C)
- 12. Toxicity due to accumulation of ammonia can be overcome :
 - (A) by substituting glutamine by glutamate
 - (B) by controlled addition of glutamine at low level
 - (C) by removal of ammonia or ammonium from culture medium
 - (D) All of the above

- 13. Most commonly used cell fusing agent among the following is :
 - (A) PEG
 - (B) NaNO₃
 - (C) Sendai virus
 - (D) Polyvinyl alcohol
- 14. Choose the true statement(s) from the following with regard to Polio vaccine :
 - (A) Sabin is live attenuated polio vaccine
 - (B) Salk is an inactivated polio vaccine
 - (C) Salk and Sabin are polio vaccines
 - (D) All of the above
- 15. Animal cells in culture appear unhealthy. Following an inquiry, it was discovered that the culture fluid contains a high concentration of lactic acid. What's wrong with this culture ?
 - (A) The cells have too much oxygen
 - (B) Glycolysis is being inhibited
 - (C) The cells do not have enough oxygen
 - (D) Ethyl alcohol is being produced in excess

- 16. Virus(s) which is used for cell fusion ?
 - (A) Sendai virus
 - (B) Herpes virus
 - (C) Myxovirus
 - (D) All of the above
- 17. ELISA is _____.
 - (A) Using radiolabelled secondary antibody
 - (B) Usage of RBCs
 - (C) Using complement-mediated cell lysis
 - (D) Addition of substrate that is converted into a coloured end product
- 18. Which of the following enzymes in bacteria are responsible for restricting the growth of viruses ?
 - (A) restriction endonuclease
 - (B) topoisomerase
 - (C) gyrase
 - (D) protease

19.	Successful gene therapy faces which of	
	the following obstacles ?	

- (A) Lack of research effort
- (B) Inefficient gene delivery
- (C) Inability to identify genetic defects
- (D) None of the above
- 20. The PCR technique was developed by :
 - (A) Karry Mullis
 - (B) Kohler
 - (C) Milstein
 - (D) Boyer
- 21. The specificity of an antibody is due to :
 - (A) Its valence
 - (B) The heavy chains
 - (C) The Fc portion of the molecule
 - (D) The variable portion of the heavy and light chain
- 22. Which of the following is most commonly occurring variant in human genome ?
 - (A) Defective gene splicing
 - (B) Premature stop codon.
 - (C) Nucleotide base insertion.
 - (D) Single-nucleotide polymorphism

- 23. The total number of cells in a culture is counted using the trypan blue exclusion assay and is found to be 2.7×10^6 cells/ml. The culture is diluted 1 : 27 and then 100 µL seeded per well into a 96 well plate. What is the final cell density per well ?
 - (A) 2.7×10^4
 - (B) 1×10^4
 - (C) 2.7×10^5
 - (D) 1×10^3
- 24. When working in the biological safety cabinet it is important to :
 - Make sure the cabinet is on and working correctly.
 - (2) Wipe the cabinet down with 70% alcohol.
 - (3) Minimize quick movement
 - (4) Do not introduce contamination

- (A) 4
- (B) 1, 2 and 4
- (C) 3 and 4
- (D) 1, 2, 3 and 4

25. Among the following choose type(s) of cell line?

> Immortalized cell line (1)

- (2)Semi-continuous cell line
- (3) Finite cell line
- (4) All of the above

Codes:

- (A) 1 and 2 only
- 2 and 3 only **(B)**
- 1 and 3 only (C)
- (D) Only 4
- 26. Choose the method (s) for cell isolation.
 - (A) Explant culture
 - (B) Enzymatic method
 - Mechanical method (C)
 - All of the above (D)

? 27.

(A)

- (B)
- (C) (C)
- (D) (D)

28. What is (are) the step(s) to establish cell

line?

- Incubation (1)
- Isolation (2)
- Subculture and Preservation (3)
- (4) All of the above

Codes :

- 1 and 2 only (A)
- 1, 2 and 3 only **(B)**
- (C) 2 and 3 only
- (D) Only 4
- 29. Subculture of cells is necessary because of:
 - No enough space for cell growth. (1)
 - (2)Accumulation of toxins.
 - No enough nutrients for cell (3) growth.

- 1 and 2 only (A)
- **(B)** 2 and 3 only
- 1, 2 and 3
- 1 and 3 only

- 30. Which of the following is (are) correct for Phenol red which is commonly used as an indicator ?
 - (1) It is red at pH 7.4 and becomes orange at pH 7.0.
 - (2) It is tomato red at pH 7.0 and yellow at pH 6.5.
 - (3) Lemon yellow below pH 6.5 in alkaline solutions.
 - (4) Pink at pH 7.6 and purple at pH 7.8.

Codes :

- (A) 1 and 2
- (B) 1 and 3
- (C) 2 and 4
- (D) 1, 2 and 4
- 31. What is the term used for an animal that has been genetically modified for in vivo tests ?
 - (A) Chimeric animal
 - (B) Transformed animal
 - (C) Transgenic animal
 - (D) Hybrid animal

- 32. The following are a list of essential components of cell culture media. Which of them are matched correctly to the requirements for effective cell culture ?
 - (1) Phenol red _____ pH buffer.
 - (2) Bicarbonate _____ pH indicator.
 - (3) Glutamine _____ Glucose and amino acid for respiration.
 - (4) Inorganic salts _____Regulation of osmotic pressure and membrane potential.

- (A) Only 4
- (B) 1, 2 and 4
- (C) 3 and 4
- (D) 1, 2 and 3
- 33. Cell surface proteins that promote cellcell contact cause cells to do which of the following ?
 - (A) allow cells to know where they are located
 - (B) find other cells
 - (C) anchor to plastic surfaces
 - (D) stop growing due to contact inhibition

- 34. Growth curve analysis is important because :
 - (1) they provide a baseline of growth characteristics.
 - (2) they allow the researcher to see changes in growth patterns over time.
 - (3) you can establish a cell doubling time
 - (4) they give a record of growth.

- (A) only 2 is correct.
- (B) 1, 2 and 4 are correct.
- (C) 1 and 3 are correct.
- (D) 1, 2, 3 and 4 are correct.
- 35. Which is best method for checking mycoplasma contamination in a mammalian cell line ?
 - (A) Southern Hybridization
 - (B) ELISA
 - (C) PCR
 - (D) Western Hybridization
- 36. For culturing, plasma from the adult chicken is preferred to mammalian plasma because :
 - (A) it forms a clear and solid coagulum even after dilution
 - (B) it is too opaque
 - (C) it doesn't produce solid clots
 - (D) it forms a semisolid coagulum

- 37. The major problem associated with the isolation of free cells and cell aggregates from organs is that of :
 - (A) releasing the cells from their supporting matrix
 - (B) inhibiting the cells from their supporting matrix
 - (C) disintegrating the cells from their supporting matrix
 - (D) None of the above
- 38. Which of the following is the technique used for the embryo culture ?
 - (A) Organ cultures on plasma clots
 - (B) Organ cultures on agar
 - (C) Whole embryo cultures
 - (D) All of the above
- 39. Which of the following is NOT a useful statistical indicator of the goodness of fit of a regression analysis equation ?
 - (A) Regression coefficient (r)
 - (B) r²
 - (C) Standard error (s)
 - (D) F tests

- 40. Higher dissolved oxygen concentration in the culture media are toxic and lead to:
 - (A) DNA degradation
 - (B) lipid peroxidation
 - (C) metabolism of nutrients in culture media at a rate greater than that required for consumption
 - (D) All of the above
- 41. The following are used for the preservation of virus, except :
 - (A) Freezing $(-20^{\circ}\text{C} 70^{\circ}\text{(C)})$
 - (B) Lyophilization
 - (C) Ether
 - (D) Formaldehyde
- 42. Embryonic stem cells are derived from the _____ of the blastocyst.
 - (A) inner cell mass
 - (B) ectoderm
 - (C) blastocoel
 - (D) mesoderm
- 43. Embryonic stem cells are _____.
 - (A) large
 - (B) small
 - (C) pluripotent
 - (D) medium-sized

- 44. _____ is the technique used to detect genetic disorders.
 - (A) Preimplantation genetic diagnosis(PGD)
 - (B) Gene therapy
 - (C) Cell therapy
 - (D) Proliferation
- 45. _____ are a unique kind of primitive, immature cells that have a remarkable capacity to develop into different kinds of cells.
 - (A) Epithelial cells
 - (B) Mesenchymal cells
 - (C) Ectodermal cells
 - (D) Stem cells
- 46. _____ refers to the varying ability of stem cells to differentiate into specialized cell types.
 - (A) Cell-regeneration
 - (B) Cell potency
 - (C) Cell viability
 - (D) Cell-therapy

- Embryonic stem cells can be grown in the laboratory.
 - (A) True
 - (B) False
 - (C) Both (A) and (B)
 - (D) None of the above
- 48. Stem cells can be obtained from the blastocyst.
 - (A) True
 - (B) False
 - (C) Both (A) and (B)
 - (D) None of the above
- 49. Which of the following are not myeloid cells ?
 - (A) Macrophages
 - (B) Monocytes
 - (C) Neutrophils
 - (D) T-cells
- 50. _____ is a late stage of scarring (fibrosis) of the liver.
 - (A) Myogenesis
 - (B) Hematopoiesis
 - (C) Thrombopoiesis
 - (D) Cirrhosis

- 51. What is the major concern of using retroviral vectors to deliver or activate pluripotent genes ?
 - (A) Not very efficient and needs repeated transfections
 - (B) Plasmid diluted as iPS cells divide
 - (C) Vector and transgenes remain in the genome and can be reactivated in differentiated cells
 - (D) The vector integrates but is excised by the transposase
- 52. Which one of the following genes was NOT part of transcription factors used to generate induced pluripotent stem (iPS) cells from mouse skin fibroblasts ?
 - (A) Oct4
 - (B) Sox2
 - (C) c-jun
 - (D) Kfl4
- 53. Embryonic stem cells can differentiate into which types of cell ?
 - (A) Only brain stem cells and specialized brain cells
 - (B) All types of specialized cells in the body
 - (C) Only cells that can produce insulin
 - (D) Only cells that can produce artificial skin

(12)

Set-A

- 54. What are the roles of stem cells in our bodies ?
 - (A) We are not sure what roles stem cells play in the body
 - (B) They fight against infections
 - (C) They perform specialized roles in the body (e. g. produce insulin, transmit signals in the nervous system, ...)
 - (D) They produce new specialized cells to replace cells that die or are used up
- 55. What are stem cell scientists investigating today ?
 - (A) When and how embryonic stem cells make decisions to produce more specialized cells
 - (B) How stem cells work in the body
 - (C) How stem cells might be used to treat disease
 - (D) All of the above

- 56. A collection of methods that allows correction of a gene that has been diagnosed in child/embryo is called
 - (A) cloning
 - (B) gene therapy
 - (C) chemotherapy
 - (D) dialysis
- 57. In gene therapy, the gene defects are cured in a child or ______ stage.
 - (A) adult
 - (B) teenage
 - (C) old
 - (D) embryo
- 58. In gene therapy, the genetic defect is corrected by delivery of _____ gene into the individual.
 - (A) incorrect
 - (B) mutant
 - (C) normal
 - (D) jumping

(13)

Set-A

- amplify an antigen-antibody reaction. cure ADA deficiency. Calorimetric biosensor (A) Bone marrow transplantation (A) Optical biosensor **(B) (B)** Cloning (C) **ELISA** (C) Hybridization Potentiometric biosensor (D) Sequencing (D) 61. ADA deficiency is caused due to 64. In the first step of gene therapy, _____ of the gene, responsible for from the blood of the patient are grown in a culture. coding ADA. (A) red blood cells (A) addition lymphocytes **(B) (B)** change (C) neurons (C) deletion platelets (D)
- (A) Smallpox

to treat which deficiency?

59.

60.

- Protein (C)
- Adenosine deaminase (D)
- Vitamin E **(B)**

is used to detect and

In 1990 the first gene therapy was given

- 62. Which one application is the of bioinformatics?
 - Design of primers (A)
 - **(B)** Grouping of proteins into families
 - Reconstructing genes from EST (C) sequences
 - All of the above (D)
- _____ is an alternative method to 63.

multiplication (D)

- 65. A functional ADA cDNA is introduced into the patient's lymphocytes using ______vector.
 - (A) jumping
 - (B) retroviral
 - (C) infectious
 - (D) bacterial
- 66. Introduction of gene isolate from bone marrow producing ADA should be introduced at what age to permanently cure ADA ?
 - (A) Teenage
 - (B) Adulthood
 - (C) Old age
 - (D) Embryonic stage
- 67. For which discovery did Georges Köhler and César Milstein share the noble prize in 1984 ?
 - (A) Inventing genome sequencing
 - (B) Discovery the structure of DNA
 - (C) Discovery of B-cell cancer myeloma
 - (D) Discovery of the process of producing monoclonal antibodies

- 68. Bispecific antibodies can bind with theirFab regions both to target antigen and to ______.
 - (A) Other antibodies
 - (B) An effector cell
 - (C) Proteins around
 - (D) Prostaglandins
- 69. Among the following, all are monoclonal antibodies, except :
 - (A) Rituximab
 - (B) Transtuzumab
 - (C) Infliximab
 - (D) Tomoxifen
- 70. The only recombinant vaccine that proved highly effective and is currently approved for human use is the vaccine against _____.
 - (A) Rubella virus
 - (B) Poxvirus
 - (C) HPV infection
 - (D) Dengue virus

- 71. Gardasil protects against which of the HPV types _____.
 - (A) HPV 1, 2, 5, 11
 - (B) HPV 5, 6, 16, 18
 - (C) HPV 6, 11, 16, 18
 - (D) HPV 1, 2, 16, 18
- 72. What is a peptidomimetic ?
 - (A) A peptide lead compound that mimics the action of an endogenous neurotransmitter or hormone.
 - (B) A structure that has the ability to bind to peptides or proteins.
 - (C) A peptide that consists of unnatural amino acids rather than natural amino acids.
 - (D) A structure that has been designed to mimic a peptide lead compound in binding to a target binding site, but has better pharmacokinetic properties.
- 73. What are the disadvantages of recombinant protein or polypeptide vaccines ?
 - (A) High cost and storage
 - (B) Storage and transportation
 - (C) Transportation and cost
 - (D) Cost, transportation, storage

- 74. The HPV protein-encoding genes are expressed in _____ vectors to create large amounts of protein.
 - (A) Bacteria
 - (B) Yeast
 - (C) Virus
 - (D) Protozoa
- 75. Which of the following vaccines contains a mutant strain of a virus that has been derived from a wild-type virulent strain ?
 - (A) Inactivated virus vaccines
 - (B) Live recombinant virus vaccines
 - (C) Virion subunit vaccines
 - (D) Live attenuated virus vaccines
- 76. Which of the following viruses are made by the mass production of virulent viruses ?
 - (A) Inactivated virus vaccines
 - (B) Live recombinant virus vaccines
 - (C) Virion subunit vaccines
 - (D) Live attenuated virus vaccines

- 77. SOPs are used to ensure consistency in daily operations. SOP is acronym for :
 - (A) Sustainable Operating Procedure
 - (B) Safety Operating Procedure
 - (C) Special Operating Procedure
 - (D) Standard Operating Procedure
- 78. What are the two core techniques thatenabled the birth of modernbiotechnology ?
 - (A) Classical and traditional biotechnology
 - (B) Red biotechnology and greenbiotechnology
 - (C) Genetic engineering and maintenance of a sterile environment
 - (D) Genetics and mathematics
- 79. Among these which one is a product ofBiotechnology application ?
 - (A) Skin
 - (B) Bacteria
 - (C) Plants
 - (D) Vaccine

- 80. Traditional hybridization procedures have limitations, which are solved by approaches.
 - (A) Modern Hybridization
 - (B) Immunology
 - (C) Cell Biology
 - (D) Genetic Engineering
- 81. Name the heavy chain of immunoglobulin G :
 - (A) μ chain
 - (B) ϵ chain
 - (C) α chain
 - (D) γ chain
- 82. Which of the following is responsible for B-cell activation ?
 - (A) Infection
 - (B) Antibody
 - (C) Antigen
 - (D) Allergy
- 83. What is the meaning of thymus independent B-cell activation ?
 - (A) Without the participation of T-cell
 - (B) Do not mature in the thymus
 - (C) Thymus would not take part in its activation
 - (D) Affinity maturation takes place in the thymus

- 84. Which of the following acts as a 87. Who discovered structure the of coreceptor for B-cell activation ? immunoglobulin by treating it with beta-
 - (A) CD28
 - **(B)** IL-2
 - (C) IgA
 - (D) CD19
- 85. Name the most commonly used monoclonal antibody for treatment of breast cancer ?
 - (A) **Bradikinins**
 - **(B)** Prostaglandin
 - (C) Erbutir
 - (D) Herceptin
- Name the drug which is used to isolate 86. hybridoma cells from the media?
 - Amphetamine (A)
 - Opium **(B)**
 - (C) Aminopterin
 - Cocaine (D)

- mercaptoethanol?
 - (A) Nisonoff
 - **(B)** Edelman
 - (C) Porter
 - Whittakar (D)
- 88. Name the class of immunoglobulin which takes part in hypersensitivity reaction ?
- (A) IgG
- **(B)** IgE
 - (C) IgA
 - (D) IgM
 - 89. Low concentration of any pathogen can be detected by _____ of their nucleic acid.
 - (A) cutting
 - amplification **(B)**
 - (C) joining
 - denaturation (D)

- 90. A single-stranded DNA or RNA tagged with a radioactive molecule is called ______.
 - (A) prove
 - (B) ssDNA
 - (C) probe
 - (D) ssRNA
- 91. The hybrid of the radioactive probe and its complementary DNA is detected by _____.
 - (A) ELISA
 - (B) RIA
 - (C) autoradiography
 - (D) PCR
- 92. Which of the following will not is a factor governing the removal of substances through dialysis ?
 - (A) Molecular weight
 - (B) Water solubility
 - (C) Disintegration time
 - (D) Protein binding

- 93. Autoradiography is used for the detection
 - of _____. (A) cold (B) cancer (C) fatigue
 - (D) fever
- 94. A ______ of a disease helps to suspect the presence of pathogen within the body.
 - (A) disease
 - (B) symptom
 - (C) consequence
 - (D) effect
- 95. ELISA stands for _____.
 - (A) Enzyme Like Immuno-sorbent Assay
 - (B) Enzyme-Linked Immuno-sorbent Assay
 - (C) Enzyme-Linked Immuno-similar Assay
 - (D) Enzyme-Linked Immuno-sorbent Array

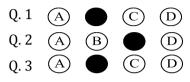
- 96. Which of the following is incorrect about a microarray ?
 - (A) It is a slide attached with a highdensity array of immobilized DNA oligomers representing the entire genome of the species under study.
 - (B) Array of immobilized DNA oligomers cannot be cDNAs.
 - (C) Each oligomer is spotted on the slide and serves as a probe for binding to a unique complementary cDNA.
 - (D) It is the most commonly used global gene expression profiling method.
- 97. Which of the following is incorrect about Oligonucleotide Design in a microarray ?
 - (A) DNA microarrays are generated by fixing oligonucleotides onto a solid support.
 - (B) The oligonucleotide array slide represents thousands of preselected genes from an organism.
 - (C) The length of oligonucleotides is typically in the range of twentyfive to seventy bases long.
 - (D) The oligonucleotides don't react with cDNA samples.

- 98. If the DNA samples are to be analyzed, the membrane should be studied. Which of them is correct for it ?
 - (A) The membrane should not be treated with UV or heat.
 - (B) The membrane is further immersed in the buffer containing labelled nucleic acids which are known as strips.
 - (C) Labelled nucleic acids bind to the sequences which are same as the sequences present on the membrane.
 - (D) The binded sequences can be visualized by autoradiography.
- 99. What are the differences in the specific regions of DNA sequence called during DNA fingerprinting ?
 - (A) Non-repetitive DNA
 - (B) Repetitive DNA
 - (C) Satellite DNA
 - (D) Histone DNA
- 100. How does polymorphism arise ?
 - (A) Mutations
 - (B) Recombination
 - (C) Diploidy
 - (D) Haploidy

4. Four alternative answers are mentioned for each question as—A, B, C & D in the booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

Example :

Question :

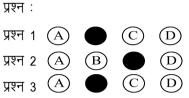


Illegible answers with cutting and over-writing or half filled circle will be cancelled.

- 5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.
- 6. All answers are to be given on OMR Answer sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.
- 7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.
- 8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.
- 9. There will be no negative marking.
- 10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.
- 11. To bring and use of log-book, calculator, pager and cellular phone in examination hall is prohibited.
- 12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.
- **Impt.** : On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is ny discrepancy in the question Booklet, then after showing it to the invigilator, get another question Booklet of the same series.

 प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर –
A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से सही उत्तर छाँटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :





अपटनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उन्हें निरस्त कर दिया जाएगा।

- प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
- सभी उत्तर केवल ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
- ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।
- परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।
- 9. निगेटिव मार्किंग नहीं है।
- कोई भी रफ कार्य, प्रश्न-पुस्तिका के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।
- 11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।
- प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।
- महत्वपूर्ण : प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीमाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।