Save & Print

Roll No:
Application No:
Name:
Exam Date: **08-Oct-2020**
Exam Time: **15:00-18:00**
Examination: **1. Course Code - M.A./M.Sc./M.C.A.**
2. Field of Study - MOLECULAR MEDICINE (CMMM)

Registered Photo

Exam Day Photo

SECTION 1 - SECTION 1

Question No.1 (Question Id - 29)
Molarity of pure H_2O at pH 7.0 is :
(A) ◯ **55.6 M (Correct Answer)**
(B) ◯ 18 M
(C) ◯ 7 M
(D) ◯ 36 M

Question No.2 (Question Id - 49)
Hydroxyurea is a potent inhibitor of DNA replication that works due to the inhibition of :
(A) ◯ **Ribonucleotide reductase (Correct Answer)**
(B) ◯ DNA polymerase α
(C) ◯ DNA polymerase β
(D) ◯ DNA Ligase

Question No.3 (Question Id - 21)
Of the global photosynthesis, 90% is carried out by :
(A) ◯ Pteridophytes
(B) ◯ **Algae (Correct Answer)**
(C) ◯ Mesophytes
(D) ◯ Xerophytes

Question No.4 (Question Id - 11)
Which of the following causes late blight of potato ?
(A) ◯ TMV
(B) ◯ Puccinia graminis
(C) ◯ Xanthomanas oryzae
(D) ◯ **Phytophthora infestans (Correct Answer)**

Question No.5 (Question Id - 48)
Mutation in the cystic fibrosis transmembrane regulator gene (CFTR) causes cystic fibrosis disease due to the infection from :

(A) ◯ Escherichia coli
(B) ◯ **Pseudomonas aeruginosa (Correct Answer)**
(C) ◯ Vibrio cholerae
(D) ◯ Salmonela typhimurium

Question No.6 (Question Id - 51)
This syndrome results in developmental delays and a characteristic facial and bodily appearance. This syndrome was named after the doctor who first described it. It is a syndrome caused due to trisomy of chromosome 21. What is it ?

(A) ◯ Turner's syndrome
(B) ◯ **Down's syndrome (Correct Answer)**
(C) ◯ Alzheimer's disease
(D) ◯ Tourette syndrome

Question No.7 (Question Id - 20)
"In which of the following plant organelle does Beta-oxidation of fatty acids occur" ?
(A) ◯ **Glyoxysome (Correct Answer)**
(B) ◯ Mitochondrion
(C) ◯ Lysosomes
(D) ◯ Peroxisomes

Question No.8 (Question Id - 25)
Raja weighed 8 gm of Sodium Hydroxide (NaOH, molecular weight = 40) and dissolved in water to prepare 500 ml of solution. Seema, from the same laboratory used 20 gm of Sodium Hydroxide to

prepare 1 Litre of solution. Which of the following statement below is **correct** ?

(A) ◯ The Normality of the NaOH solution prepared by Raja is more than that prepared by Seema.
(B) ◯ **Normality of the NaOH solution prepared by Seema is more than that prepared by Raja. (Correct Answer)**
(C) ◯ Both Raja and Seema prepared NaOH solution of the same normality.
(D) ◯ Seema prepared 4 N NaOH solution.

Question No.9 (Question Id - 14)
What is the common link among glycolysis, Kreb's cycle, oxidation of fatty acids or carbohydrates, and fatty acid metabolism ?

(A) ◯ **Acetyl CoA (Correct Answer)**
(B) ◯ Succinic acid
(C) ◯ Citric acid
(D) ◯ Oxaloacetic acid

Question No.10 (Question Id - 89)
The aromatic ring present in beta blocker propranolol is :
(A) ◯ Anthracene
(B) ◯ Pyridine
(C) ◯ **Napthalene (Correct Answer)**
(D) ◯ Oxazole

Question No.11 (Question Id - 6)
Limb generation at the site of tail amputation in frog is detected in presence of one of the following :
(A) ◯ Vitamin D_2 + Calcium
(B) ◯ Vitamin D_3 + Calcium
(C) ◯ Vitamin D_2 + Vitamin D_3
(D) ◯ **Vitamin A (Correct Answer)**

Question No.12 (Question Id - 60)
Which of these organs can regenerate ?
(A) ◯ The Brain
(B) ◯ The Heart
(C) ◯ The Kidneys
(D) ◯ **The liver (Correct Answer)**

Question No.13 (Question Id - 67)
A plant biologist needs to generate protoplasts for somatic hybridization. Which combinations of enzymes must he utilize to generate protoplasts from plant leaves ?

(A) ◯ **Cellulase and pectinase (Correct Answer)**
(B) ◯ Cellulase and protease
(C) ◯ Chitinase and pectinase
(D) ◯ Cellulase and chitinase

Question No.14 (Question Id - 80)
Which one of the following statement is NOT true for heterotrimeric G proteins ?
(A) ◯ The separation of the δ subunit from the complex mediates the biological effect.
(B) ◯ GDP is bound to the β subunit.
(C) ◯ **They have seven transmembrane helices. (Correct Answer)**
(D) ◯ The α subunit has intrinsic GTPase activity.

Question No.15 (Question Id - 10)
Athlete's foot is a disease caused by :
(A) ◯ Nematode
(B) ◯ Bacteria
(C) ◯ **Fungus (Correct Answer)**
(D) ◯ Protozoan

Question No.16 (Question Id - 74)

In the following nuclear reaction

$$_{72}X^{180} \xrightarrow{-\alpha} Y \xrightarrow{-\beta} Z \xrightarrow{-\alpha} A \xrightarrow{-\gamma} P$$

The atomic mass and atomic number of P are respectively.
(A) ◯ 170, 69

(B) ○ **172, 69 (Correct Answer)**
(C) ○ 172, 70
(D) ○ 170, 70

Question No.17 (Question Id - 7)
During course of evolution the reptiles could conquer the land because :
(A) ○ they had larger size
(B) ○ they could gather food on land
(C) ○ **reptiles eggs were amniotic (Correct Answer)**
(D) ○ they could withstand extreme hardships of nature

Question No.18 (Question Id - 41)
In the presence of inducer the operator of lac operons will be :
(A) ○ Occupied by inducer - repressor complex
(B) ○ **Unoccupied (Correct Answer)**
(C) ○ Occupied by inducer
(D) ○ Occupied by repressor

Question No.19 (Question Id - 97)
The receptors expressed on innate immune cells recognize microbes by :
(A) ○ Pathogen associated molecular proteins.
(B) ○ **Pathogen associated molecular patterns. (Correct Answer)**
(C) ○ Pathogen associated molecular probes.
(D) ○ Pathogen associated molecular primers.

Question No.20 (Question Id - 26)
Which of the following molecular species are expected to be paramagnetic ?
(A) ○ O_2^+, O_2^- and O_2^{2-}
(B) ○ Only O_2 and O_2^{2-}
(C) ○ Only O_2^+ and O_2^- **(Correct Answer)**
(D) ○ Only O_2^- and O_2^{2-}

Question No.21 (Question Id - 31)
In a proteomics experiment using mass spectrometer what does “m” and “z” stand for :

(A) ○ “m” for mass and “*z*” for zeta potential
(B) ○ **“m” for mass and “*z*” for charge (Correct Answer)**
(C) ○ “m” for momentum and “z” for zeta potential
(D) ○ “m” for momentum and “z” for charge

Question No.22 (Question Id - 35)
Enzymes are classified based on the modes of their action. Which of the following represent the **correct** order ?

(A) ○ **Oxidoreductases, transferases, hydrolases, lyases, isomerases, ligases (Correct Answer)**
(B) ○ Hydrolases, isomerases, ligases, lyases, oxidoreductases, transferases
(C) ○ Oxidoreductases, transferases, hydrolases, ligases, isomerases, lyases
(D) ○ Isomerases, lyases, ligases, hydrolases, oxidoreductases, transferases

Question No.23 (Question Id - 66)
A degree of variation is observed in plant cells grown in *in vitro* cultures. This phenomenon is known as :

(A) ○ Haploid mutation
(B) ○ **Somaclonal variation (Correct Answer)**
(C) ○ Diploidy
(D) ○ Gene fusions

Question No.24 (Question Id - 76)
Steroid hormones play a central role in many physiological processes. A steroid hormone produced by corpus luteum and involved in the maintenance of pregnancy is :

(A) ○ **Progesterone (Correct Answer)**
(B) ○ Estrogen

(C) ○ Aldosterone
(D) ○ Testosterone

Question No.25 (Question Id - 57)
Arteries supplying blood to the heart are called :
(A) ○ Carotid arteries
(B) ○ **Coronary arteries (Correct Answer)**
(C) ○ Pulmonary arteries
(D) ○ hepatic

Question No.26 (Question Id - 45)
A class of antibiotics inhibits cell wall biosynthesis in bacteria. Which of the following component of the cell does it act on ?

(A) ○ Membrane proteins
(B) ○ Membrane lipids
(C) ○ **Peptidoglycan (Correct Answer)**
(D) ○ Cellulose

Question No.27 (Question Id - 5)
Restriction Enzymes cleave palindromic sequences called restriction sites. What is the most probable number of nucleotides after which a 4 base pair containing restriction site may be found in a long double stranded DNA sequence ?

(A) ○ 2^4
(B) ○ 4^2
(C) ○ **4^4 (Correct Answer)**
(D) ○ 8^2

Question No.28 (Question Id - 2)
Cholera is a devastating enteric disease that affects huge populations around the world. Identify who among the following scientists discovered the cholera toxin :

(A) ○ Robert Koch
(B) ○ M.W. Nirenbeng
(C) ○ T. Ramamurthy
(D) ○ **Shambhu Nath De (Correct Answer)**

Question No.29 (Question Id - 50)
The antibiotic chloramphenicol inhibits protein synthesis by blocking :
(A) ○ **Peptidyl transferase (Correct Answer)**
(B) ○ tRNA synthetase
(C) ○ Initiation factor IF1
(D) ○ Elongation factor Tu

Question No.30 (Question Id - 19)
Oxygen (O_2) generated during photosynthesis comes from :
(A) ○ CO_2
(B) ○ **H_2O (Correct Answer)**
(C) ○ Both CO_2 and H_2O (one oxygen atom each)
(D) ○ CH_2O

Question No.31 (Question Id - 38)
A purified protein of 80-kDa was resolved by sodium dodecylsulfate polyacrylamide gel electrophoresis (SDS-PAGE) under reducing conditions. The gel was stained and showed the presence of three bands of 25-kDa, 35-kDa and 20-kDa. Which one of the statement explains this observation ?

(A) ○ SDS broke the protein to three different fragments.
(B) ○ **The protein is composed of three polypeptides of these sizes. (Correct Answer)**
(C) ○ There are three proteins present.
(D) ○ A purified protein of 80-kDa cannot show the presence of these fragments.

Question No.32 (Question Id - 82)
In a laboratory a student is asked to separate cell lysate into cyoplasmic and nuclear fractions. He/She centrifuges the lysate at 1000 g for 10 minutes at room temperature, where would the nuclei be present ?

(A) ○ Supernatant
(B) ○ **Pellet (Correct Answer)**
(C) ○ Supernatant and pellet
(D) ○ Neither Supernatant and Pellet

Question No.33 (Question Id - 18)
Maximum free energy is available at which of the following levels ?
(A) ○ Tertiary Consumers
(B) ○ Decomposers
(C) ○ **Producers (Correct Answer)**
(D) ○ Secondary Consumers

Question No.34 (Question Id - 1)
Haemoglobin and Myoglobin are associated with Noble Prize in Chemistry in the year 1962. Name of the Scientist who received the Noble Prize for solving structure of haemoglobin is :

(A) ○ Linus Pauling
(B) ○ Lawrence Bragg
(C) ○ John Kendrew
(D) ○ **Max Penutz (Correct Answer)**

Question No.35 (Question Id - 69)
When exposed to light, a green plant tilts towards the light source due to which phenomenon ?

(A) ○ Light activates photosynthesis in the bent tissues.
(B) ○ Leaves bend towards the light source to make the area heavy.
(C) ○ The stems transfer more nutrients to the bent tissues.
(D) ○ **Cell elongation in the shaded region due to accumulation of hormone auxin. (Correct Answer)**

Question No.36 (Question Id - 15)
In allopatric speciation :

(A) ○ Two population occupy same habitat and there is reduction in gene flow
(B) ○ Two population occupy same habitat and there is normal flow of genes
(C) ○ **Two population occupy different habitat and the flow of gene is restricted (Correct Answer)**
(D) ○ Two population occupy different habitats and the flow of gene is normal

Question No.37 (Question Id - 27)
Circumference of a circular field is 314 meter. What is the area of the field ?
(A) ○ **7850 m^2 (Correct Answer)**
(B) ○ 894 m^2
(C) ○ 8035 m^2
(D) ○ 9019 m^2

Question No.38 (Question Id - 63)
Understanding of plant immunity is essential to develop disease resistant crops. Plants have which type of immune system ?

(A) ○ Circulatory immune system
(B) ○ Adaptive immune system
(C) ○ Physical barrier immunity
(D) ○ **Innate immune system (Correct Answer)**

Question No.39 (Question Id - 70)
Agrobacterium tumefaciens causes crown gall disease by genetically transforming plants. Which one of the below statement is incorrect for Agrobacterium-mediated transformation ?

(A) ○ **The genetic material transferred to the host plant is in form of double-stranded RNA. (Correct Answer)**
(B) ○ Transformation by Agrobacterium is signaled by wound-released compounds from the plants.
(C) ○ The gall is formed due to over-production of auxin and cytokinins.
(D) ○ Virulence gene functions co-ordinate the transfer of the genetic material to the host plant.

Question No.40 (Question Id - 36)

Which of the following is a saturated fatty acid ?

(A) ○ Palmitic acid

(B) ○ Stearic acid

(C) ○ Myristic acid

(D) ○ **Oleic acid (Correct Answer)**

Question No.41 (Question Id - 39)

Match **List - I** with **List - II**

List - I	List - II
A. Cytochrome C	I. Mg
B. Calmodulin	II. Zn
C. Chlorophyll	III. Fe
D. Alcohol dehydrogenase	IV. Ca

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

(A) ○ A - I, B - III, C - II, D - IV

(B) ○ A - III, B - II, C - I, D - IV

(C) ○ A - II, B - I, C - IV, D - III

(D) ○ **A - III, B - IV, C - I, D - II (Correct Answer)**

Question No.42 (Question Id - 8)

Dosage compensation in Drosophila is achieved by :

(A) ○ Activity of the autosomes in females are down regulated

(B) ○ Activity of the two X chromosomes in females are down regulated

(C) ○ **Activity of the single X chromosome in males is up regulated (Correct Answer)**

(D) ○ One of the X chromosomes in female is inactivated

Question No.43 (Question Id - 92)

The generation of antibody diversity in B-cell is achieved through :

(A) ○ Protein splicing

(B) ○ Class switching

(C) ○ Allelic inclusion

(D) ○ **Somatic hypermutation (Correct Answer)**

Question No.44 (Question Id - 42)

Aerobic oxidation of glucose occurs in E.coli in which organelle ?

(A) ○ Cytoplasm

(B) ○ **Inner membrane (Correct Answer)**

(C) ○ Inner mitochondrial membrane

(D) ○ Outer mitochondrial membrane

Question No.45 (Question Id - 30)

Jay is $\frac{1}{4}^{th}$ of age of his mother. Four years later Jay's mother will be 3 times older than him. What is the current age of Jay's mother ?

(A) ○ **32 (Correct Answer)**

(B) ○ 44

(C) ○ 52

(D) ○ 48

Question No.46 (Question Id - 32)

A protein was digested with trypsin. Which of these peptides is not expected to be formed ?

(A) ○ LFWMCSFK

(B) ○ SAGPCIR

(C) ○ **CHSYTGQM (Correct Answer)**

(D) ○ ILSFCIWR

Question No.47 (Question Id - 9)

Which of the following is also called Jelly fish ?

(A) ○ Hydra

(B) ○ Physelia

(C) ○ **Aurelia (Correct Answer)**

(D) ○ Matride

Question No.48 (Question Id - 53)
Which blood clotting disorder is passed from Queen Victoria to many of the royal families in Europe ?
(A) ○ **Hemophilia (Correct Answer)**
(B) ○ Sickle cell anemia
(C) ○ Von Willebrand's disease
(D) ○ Factor V deficiency

Question No.49 (Question Id - 61)
In the sequence of the codon specifying a particular amino acid, which position allows certain variation ?

(A) ○ First base
(B) ○ Second base
(C) ○ **Third base (Correct Answer)**
(D) ○ First and third bases

Question No.50 (Question Id - 75)
When RBC's are placed in a hypertonic solution, which of the following will happen ?
(A) ○ RBC will swell
(B) ○ **RBC will shrink (Correct Answer)**
(C) ○ RBC will burst
(D) ○ No change

Question No.51 (Question Id - 100)
The quality of nucleotide identification in next generation sequencing is determined by :
(A) ○ P-value
(B) ○ Z-score
(C) ○ **Phred score (Correct Answer)**
(D) ○ E-value

Question No.52 (Question Id - 90)
Which one of the following drug is used in emergency postcoital contraception ?
(A) ○ **Levonorgestrel (Correct Answer)**
(B) ○ Mefepriston
(C) ○ Misoprostol
(D) ○ 17, β-estradiol

Question No.53 (Question Id - 4)
From the list of advanced equipments given below, identify the one that requires X-rays for its functioning.

(A) ○ PET (Positron Emission Tomography) Scan
(B) ○ **CT (Computed Tomography) Scan (Correct Answer)**
(C) ○ Real-time PCR (Polymerase Chain Reaction)
(D) ○ Confocal microscope

Question No.54 (Question Id - 71)

Four species are listed below :

A. HCO_3^-

B. H_3O^+

C. HSO_4^-

D. HSO_3F

Which one of the following is the **correct** sequence of their acidic strength ?

(A) ○ D < B < C < A
(B) ○ B < C < A < D
(C) ○ **A < C < B < D (Correct Answer)**
(D) ○ C < A < D < B

Question No.55 (Question Id - 77)
Anti-malarial drug Quinine is obtained from :

(A) ○ root of cinchona
(B) ○ **bark of cinchona (Correct Answer)**
(C) ○ wood of cinchona
(D) ○ leaves of cinchona

Question No.56 (Question Id - 37)
Which of the following statements is false for pH of a solution ?
(A) ○ The pH of a solution is log to base 10 of the reciprocal hydrogen ion concentration.
(B) ○ A solution with pH 7 has hydrogen ion concentration of 10^{-7} mmol/liter.
(C) ○ **For each pH unit less than 7, the concentration of hydrogen ion decreases by 10 fold. (Correct Answer)**
(D) ○ pH of a solution is negative log of the concentration of hydrogen ion.

Question No.57 (Question Id - 13)
The chemical basis for the origin of life was proved using Spark Discharge apparatus. It was designed by which of the following scientists ?

(A) ○ Charles Darwin
(B) ○ Jacob and Monod
(C) ○ **Urey and Miller (Correct Answer)**
(D) ○ Watson and Crick

Question No.58 (Question Id - 12)
Which one of the following malaria parasites causes quartan malaria ?
(A) ○ *Plasmodium vivax*
(B) ○ *Plasmodium falciparum*
(C) ○ *Plasmodium ovale*
(D) ○ ***Plasmodium malariae* (Correct Answer)**

Question No.59 (Question Id - 33)
Which of the following lipids is mainly accumulated in adipose tissue during obesity ?
(A) ○ Phosphoacyl glycerols
(B) ○ Cholesterol
(C) ○ **Triglycerols (Correct Answer)**
(D) ○ Sphingolipids

Question No.60 (Question Id - 58)
Which kind of study is done to know if a particular disease has genetic link ?
(A) ○ Case - control studies
(B) ○ Cohort based studies
(C) ○ Population based studies
(D) ○ **Studies using twin pairs (Correct Answer)**

Question No.61 (Question Id - 79)
The classical nuclear export signal (NES) in a protein targets it for export from nucleus to cytoplasmic compartment. The NES in a protein is characterized by the presence of :

(A) ○ aromatic amino acid residues
(B) ○ **hydrophobic amino acid residues (Correct Answer)**
(C) ○ positively charged amino acid residues
(D) ○ negatively charged residues

Question No.62 (Question Id - 28)
Blood is best considered to be a :
(A) ○ Organ
(B) ○ **Tissue (Correct Answer)**
(C) ○ Fluid
(D) ○ Matrix

Question No.63 (Question Id - 95)
According to Gell and Coombs classification, IgE mediated hypersensitivity is an example of :

(A) ○ **Type I hypersensitivity (Correct Answer)**
(B) ○ Type II hypersensitivity
(C) ○ Type III hypersensitivity
(D) ○ Type IV hypersensitivity

Question No.64 (Question Id - 34)
Enzymes found in lysosome are :
(A) ◯ **acid hydrolases (Correct Answer)**
(B) ◯ basic hydrolases
(C) ◯ oxido - reductases
(D) ◯ lipases

Question No.65 (Question Id - 87)
A violinist is having stage fear associated with tremors in hands and fingers that interferes with his bowing perfection. In the above case what drug would you choose from the following list to manage ?

(A) ◯ **Propranolol (Correct Answer)**
(B) ◯ Diazepam
(C) ◯ Lorazepam
(D) ◯ Cortisol

Question No.66 (Question Id - 86)
Which protein is involved in retrograde transport within the cells ?
(A) ◯ Actin
(B) ◯ Kinesin
(C) ◯ **Dynein (Correct Answer)**
(D) ◯ Keratin

Question No.67 (Question Id - 22)
Transposable elements or jumping genes were first identified by Barbara McClintock in which plant ?
(A) ◯ Arabidopsis
(B) ◯ Rice
(C) ◯ Tobacco
(D) ◯ **Maize (Correct Answer)**

Question No.68 (Question Id - 78)
Which one of the following is the characteristic of a natural linear piece of DNA ?
(A) ◯ Left-handed coiling
(B) ◯ Zero linking number
(C) ◯ A-form helix
(D) ◯ **Right-handed coiling (Correct Answer)**

Question No.69 (Question Id - 55)
Rhesus (Rh) factor was first discovered by Karl Landsteiner and Alexander S. Wiener in 1937. It is an inherited protein found on the surface of red blood cells (RBC). It is known to be present in :

(A) ◯ **humans (Correct Answer)**
(B) ◯ all mammals
(C) ◯ all vertebrates
(D) ◯ diseased RBCs

Question No.70 (Question Id - 88)
Which of the following anticancer drug is a pyrimidine analog ?
(A) ◯ Methotrexate
(B) ◯ **Fluorouracil (Correct Answer)**
(C) ◯ Thioguanine
(D) ◯ Mercaptopurine

Question No.71 (Question Id - 52)
Deficiency of which vitamin causes pernicious anemia :
(A) ◯ **Vitamin B_{12} (Correct Answer)**
(B) ◯ Vitamin B_6
(C) ◯ Vitamin B_2
(D) ◯ Vitamin C

Question No.72 (Question Id - 40)
The active site of an enzyme can accommodate :
(A) ◯ Allosteric inhibitor
(B) ◯ **Competitive inhibitor (Correct Answer)**
(C) ◯ Non competitive inhibitor
(D) ◯ Allosteric activator

Question No.73 (Question Id - 65)
Heterosis or hybrid vigor is a phenomenon most conceptually related to :
(A) ◯ **Superiority of hybrids over the parents (Correct Answer)**
(B) ◯ Mutations arising in progenies
(C) ◯ Tissue culture incompatibility between parents
(D) ◯ Somatic hybridization more favorable between parents

Question No.74 (Question Id - 94)
The antibody that helps in activation of mast cells is :
(A) ◯ IgM
(B) ◯ IgG
(C) ◯ **IgE (Correct Answer)**
(D) ◯ IgA

Question No.75 (Question Id - 59)
A 60 year old person has a sudden onset of chest pain which is radiating to arms and jaw. He is also having difficulty in breathing. What disease does he have ?

(A) ◯ Pulmonary embolism
(B) ◯ **Myocardial infarction (Correct Answer)**
(C) ◯ Severe asthma attack
(D) ◯ Duodenal ulcer

Question No.76 (Question Id - 24)
When electric field is applied to the terminals of a circuit material consisting of two dissimilar conduction, cooling was observed at one junction and heating at the other. The phenomenon is known as :

(A) ◯ Joule Thompson effect
(B) ◯ **Peltier effect (Correct Answer)**
(C) ◯ Thermocouple
(D) ◯ Bohr's effect

Question No.77 (Question Id - 68)
The products of light reaction of photosynthesis are used as substrates for Calvin cycle. Which are these products ?

(A) ◯ Ribulose bis-phosphate and Carbon di-oxide
(B) ◯ ADP and $NADP^+$
(C) ◯ **NADPH and ATP (Correct Answer)**
(D) ◯ Water and Carbon di-oxide

Question No.78 (Question Id - 3)
Name the First Indian Satellite :
(A) ◯ **Aryabhatta (Correct Answer)**
(B) ◯ Rohini
(C) ◯ Chandrayan
(D) ◯ Mangalayan

Question No.79 (Question Id - 56)
Type 1 diabetes is associated with :
(A) ◯ involuntary glucose release from liver
(B) ◯ **destruction of pancreatic β cells (Correct Answer)**
(C) ◯ dysfunction of insulin receptor
(D) ◯ sudden increase in dietary glucose uptake

Question No.80 (Question Id - 62)
Transgenic plants expressing viral coat proteins have proven to be effective in developing resistance to the same virus from which the coat protein was derived. Resistance mechanism in these plants has ascribed to multiple processes except :

(A) ◯ **Plants that produce more defensive proteins than the non-transgenic plants (Correct Answer)**
(B) ◯ Plants that prevent uncoating of the infecting virus
(C) ◯ Plants that prevent attachment of the virus
(D) ◯ Plants that prevent the replication and spread of the virus

Question No.81 (Question Id - 46)
How many tRNA(s) is/are present in E.coli for Methionine ?
(A) ○ 0
(B) ○ 1
(C) ○ **2 (Correct Answer)**
(D) ○ 4

Question No.82 (Question Id - 44)
Which of the following term describes a bacterium having flagella projecting from any point on its body surface ?

(A) ○ Monotrichous
(B) ○ Amphitrichous
(C) ○ **Peritrichous (Correct Answer)**
(D) ○ Lophotricous

Question No.83 (Question Id - 73)
Which of the following exhibits increasing order in the basic strength of nitrogenous bases in water ? (R = methyl)

(A) ○ $NH_3 > RNH_2 > R_2NH > R_3N$
(B) ○ $R_3N > R_2NH > RNH_2 > NH_3$
(C) ○ $RNH_2 > R_2NH > R_3N > NH_3$
(D) ○ **$R_2NH > RNH_2 > R_3N > NH_3$ (Correct Answer)**

Question No.84 (Question Id - 47)
A phenomenon where a blood cell casts a 'DNA net' or 'extracellular trap' outside of the cell to allow it to trap and kill large pathogens is termed as :

(A) ○ Meiosis
(B) ○ Ketosis
(C) ○ Ptosis
(D) ○ **Etosis (Correct Answer)**

Question No.85 (Question Id - 16)
Genetic drift is most likely to occur in population that are :
(A) ○ **Small and inbred (Correct Answer)**
(B) ○ Large and panmictic
(C) ○ Allopatric
(D) ○ Undergoing gene flow

Question No.86 (Question Id - 91)
MHC class I molecules are :
(A) ○ **Present on all nucleated cells and help in presenting viral antigens to CD8+T-cells. (Correct Answer)**
(B) ○ Present only on antigen presenting cells and help in presenting viral antigens to CD4+ cells.
(C) ○ Present only on antigen presenting cells and help in presenting bacterial antigens to CD4+ cells.
(D) ○ Present only on antigen presenting cells and help in presenting viral and bacterial antigens to CD8+.

Question No.87 (Question Id - 84)
Identify the protein that is not a component of the extra cellular matrix ?
(A) ○ Collagen
(B) ○ Fibronectin
(C) ○ **Lamin (Correct Answer)**
(D) ○ Laminin

Question No.88 (Question Id - 54)
A specialized cell type, named after its discoverer and known to be involved in the breakdown of worn-out red blood cells as well as infecting microbes etc. is termed as :

(A) ○ Schwann cell
(B) ○ Leydig cell
(C) ○ **Kupffer cell (Correct Answer)**
(D) ○ Beta-cell

Question No.89 (Question Id - 43)
Natural host of Ebola virus is :
(A) ○ Pig
(B) ○ **Fruit Bat (Correct Answer)**
(C) ○ Migratory birds
(D) ○ Camel

Question No.90 (Question Id - 85)
Mitotic index measures the proportion of cells in mitosis. The duration of M-phase can be calculated by which of the following methods ?

(A) ○ Mitotic index÷Total number of cells.
(B) ○ Mitotic index x Total number of cells.
(C) ○ **Mitotic index x mean generation time. (Correct Answer)**
(D) ○ Total number of cells x mean generation time.

Question No.91 (Question Id - 83)
Which cellular structures can be easily visualized through a bright field light microscope ?
(A) ○ Lysosomes
(B) ○ Endosomes
(C) ○ Endoplasmic reticulun
(D) ○ **Nucleus (Correct Answer)**

Question No.92 (Question Id - 81)
An immnuoprecipitation experiment to examine protein-protein interaction shows that proteins X and Y bind to tubulin. When the cells are treated with Nocodazole to depolymerize microtubules, prior to the immunoprecipitation, neither protein X nor protein Y is found in the precipitated complex. This suggests that :
(A) ○ Protein X interacts with Tubulin
(B) ○ Protein Y interacts with tubulin
(C) ○ Neither protein X nor protein Y interacts with Tubulin
(D) ○ **Both Protein X and Y interacts with tubulin (Correct Answer)**

Question No.93 (Question Id - 23)

How much time it will take for 150 pico gram of a radioactive material take to decay down to $\frac{1^{rd}}{3}$ of its initial amount ? Decay constant of the material is 1.84×10^{-1} day^{-1}.

(A) ○ **25 days (Correct Answer)**
(B) ○ 30.5 days
(C) ○ 50 days
(D) ○ 15.35 days

Question No.94 (Question Id - 17)
Below is a list of sexually transmitted diseases. Identify the disease that is caused by virus.
(A) ○ Syphilis
(B) ○ Gonorrhoea
(C) ○ Chlamydia
(D) ○ **Genital herpes (Correct Answer)**

Question No.95 (Question Id - 64)
Vavilovian mimicry is fundamental in understanding the evolution of weeds. According to this concept, interplay between three players has been proposed. Which one is the odd-one out ?

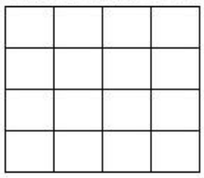
(A) ○ Mimic plant
(B) ○ Operator
(C) ○ **Enhancer (Correct Answer)**
(D) ○ Model plant

Question No.96 (Question Id - 96)
Following are some of the characteristics of immunoglobulin heavy chains, except one. Identify the **incorrect** statement.

(A) ○ They participate in Fc receptor binding.
(B) ○ They participate in epitope binding.
(C) ○ They bind to sugar residues.
(D) ○ **They transmit intracellular signals after binding to an antigen. (Correct Answer)**

Question No.97 (Question Id - 98)

How many squares are there in the figure below ?



(A) ◯ 16
(B) ◯ **30 (Correct Answer)**
(C) ◯ 26
(D) ◯ 17

Question No.98 (Question Id - 99)

Which Bioinformatic approach is used to find homology between two oligonucleotide sequences ?

(A) ◯ PDB
(B) ◯ **BLAST (Correct Answer)**
(C) ◯ UniProt
(D) ◯ GO

Question No.99 (Question Id - 93)

The chain of molecular events that takes place in memory B-cell following antigen exposure is :

(A) ◯ V-D-J recombination
(B) ◯ V-J-C recombination
(C) ◯ **Class switching (Correct Answer)**
(D) ◯ Allelic exclusion

Question No.100 (Question Id - 72)

Hemocyanin contains :

(A) ◯ a dinuclear copper core and binds dioxygen in the cuprous state.
(B) ◯ a dinuclear copper core and binds dioxygen in the cupric state.
(C) ◯ **a mononuclear copper core and binds dioxygen in the cuprous state. (Correct Answer)**
(D) ◯ a mononuclear copper core and binds dioxygen in the cupric state.

Save & Print