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PROVISIONAL ANSWER KEY (CBRT)

Name of The Post	**Associate Professor, Biochemistry, General State Service, Class-1 (Special Recruitment)**
Advertisement No	**80/2019-20**
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Que. No.	**001-200 (Concerned Subject)**
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Last Date to Send Suggestion (S)	**22-12 -2020**

Instructions / સૂચના

Candidate must ensure compliance to the instructions mentioned below, else objections shall not be considered: -

(1) All the suggestion should be submitted in prescribed format of suggestion sheet Physically.

(2) Question wise suggestion to be submitted in the prescribed format (Suggestion Sheet) published on the website.

(3) All suggestions are to be submitted with reference to the Master Question Paper with provisional answer key (Master Question Paper), published herewith on the website. Objections should be sent referring to the Question, Question No. & options of the Master Question Paper.

(4) Suggestions regarding question nos. and options other than provisional answer key (Master Question Paper) shall not be considered.

(5) Objections and answers suggested by the candidate should be in compliance with the responses given by him in his answer sheet. Objections shall not be considered, in case, if responses given in the answer sheet /response sheet and submitted suggestions are differed.

(6) Objection for each question shall be made on separate sheet. Objection for more than one question in single sheet shall not be considered & treated as cancelled.

ઉમેદ્વારે નીચેની સૂચનાઓનું પાલન કરવાની તકેદારી રાખવી, અન્યથા વાંધા-સૂચન અંગે કરેલ રજૂઆતો ધ્યાને લેવાશે નહીં

(1) ઉમેદ્વારે વાંધા-સૂચનો નિયત કરવામાં આવેલ વાંધા-સૂચન પત્રકથી રજૂ કરવાના રહેશે.

(2) ઉમેદ્વારે પ્રશ્નપ્રમાણે વાંધા-સૂચનો રજૂ કરવા વેબસાઇટ પર પ્રસિધ્ધ થયેલ નિયત વાંધા-સૂચન પત્રકના નમૂનાનો જ ઉપયોગ કરવો.

(3) ઉમેદ્વારે પોતાને પરીક્ષામાં મળેલ પ્રશ્નપુસ્તિકામાં છપાયેલ પ્રશ્નક્રમાંક મુજબ વાંધા-સૂચનો રજૂ ન કરતા તમામ વાંધા-સૂચનો વેબસાઈટ પર પ્રસિધ્ધ થયેલ પ્રોવિઝનલ આન્સર કી (માસ્ટર પ્રશ્નપત્ર)ના પ્રશ્ન ક્રમાંક મુજબ અને તે સંદર્ભમાં રજૂ કરવા.

(4) માસ્ટર પ્રશ્નપત્ર માં નિર્દિષ્ટ પ્રશ્ન અને વિકલ્પ સિવાયના વાંધા-સૂચન ધ્યાને લેવામાં આવશે નહીં.

(5) ઉમેદ્વારે જે પ્રશ્નના વિકલ્પ પર વાંધો રજૂ કરેલ છે અને વિકલ્પ રૂપે જે જવાબ સૂચવેલ છે એ જવાબ ઉમેદ્વારે પોતાની ઉત્તરવહીમાં આપેલ હોવો જોઈએ. ઉમેદ્વારે સૂચવેલ જવાબ અને ઉત્તરવહીનો જવાબ ભિન્ન હશે તો ઉમેદ્વારે રજૂ કરેલ વાંધા-સૂચન ધ્યાનમાં લેવાશે નહીં.

(6) એક પ્રશ્ન માટે એક જ વાંધા-સૂચન પત્રક વાપરવું. એક જ વાંધા-સૂચન પત્રકમાં એકથી વધારે પ્રશ્નોની રજૂઆત કરેલ હશે તો તે અંગેના વાંધા-સૂચનો ધ્યાને લેવાશે નહીં.

001. A 2-week - old infant is diagnosed with urea cycle defect. Enzyme activity showed no activity of ornithine transcarbamoylase (OTC), an enzyme of the cycle. Molecular analysis revealed that messenger RNA (mRNA) product of gene was identical to that of a control. Which of the techniques listed below was most likely used to analyze mRNA.

(A) Dideoxy chain termination
(B) Northern blot
(C) Polymerase chain reaction
(D) Southern blot

002. The major bulk of acid load of the body is eliminated in the form of:

(A) HCO_3^-
(B) H^+
(C) NH_4^+
(D) H_2CO_3

003. Aggrecan is a proteoglycan present in

(A) Cartilage
(B) Liver
(C) Brain
(D) Lungs

004. The Phospholipid involved in blood clotting:

(A) Lecithin
(B) Cardiolipin
(C) Plasmalogen
(D) Cephalin

005. Iodoacetate inhibits enzyme by reacting with which particular group:

(A) Amide
(B) Sulfhydryl
(C) Carboxyl
(D) Imidazole

006. The active form of Vitamin D is:

(A) 1, 25 DHCC
(B) 24, 25 DHCC
(C) 25, 24 DHCC
(D) 25 HCC

007. The marker for Colorectal cancers:

(A) Carcinoembryonic antigen
(B) Alkaline Phosphatase
(C) Calcitonin
(D) CA-125

008. The secretory Ig is:

(A) IgM
(B) IgG
(C) IgE
(D) Ig A

009. Diabetes mellitus may be caused by :

(A) Anti insulin hormone secretion
(B) Low levels of glucocorticoids
(C) Resistance of target tissues
(D) Reduced secretion of growth hormone

010. The lactic acidosis can result from deficiency of :

(A) Lactate dehydrogenase
(B) Pyruvate dehydrogenase
(C) Pyruvate kinase
(D) Phosphoenol pyruvate carboxykinase

011. Function of HDL is the transport of :

(A) Triglycerides from intestine to adipose tissue
(B) Cholesterol from liver to peripheral tissue
(C) Cholesterol from peripheral tissue to liver
(D) Free fatty acids (NEFA) from adipose tissue

012. Refsum disease is due to lack of enzymes of :
(A) Alpha oxidation
(B) Beta oxidation
(C) Omega oxidation
(D) Desaturation

013. Rate limiting enzyme in heme synthesis is :
(A) Heme synthase
(B) ALA dehydratase
(C) ALA synthase
(D) Uroporphyrinogen synthase

014. The false positive benedict's test is given by :
(A) Glucose
(B) Sucrose
(C) Trehalose
(D) Alkapton

015. The least radio sensitive tumour is :
(A) Osteosarcoma
(B) Hodgkins lymphoma
(C) Cancer of oral cavity
(D) Cancer of prostate

016. An important cause of water intoxication is
(A) Nephrogenic diabetes insipidus
(B) Renal failure
(C) Gastroenteritis
(D) Fanconi syndrome

017. Deficiency of Pantothenic acid leads to;
(A) Night Blindness
(B) Rickets
(C) Macrocytic anemia
(D) Burning foot syndrome

018. Blood is collected in fluoride oxalate bottle to :
(A) Prevent clotting
(B) Preserve glucose
(C) Preserve glucose and prevent clotting
(D) Get quick results

019. The radioactive isotope with maximum half life is :
(A) ^{131} I
(B) ^{14} C
(C) ^{51} Cr
(D) ^{90} Sr

020. Niacin can be synthesized from the following amino acid:
(A) Tyrosine
(B) Threonine
(C) Tryptophan
(D) Histidine

021. Sodium potassium pump is inhibited by :
(A) Aspirin
(B) Digoxin
(C) Valinomycin
(D) Dicoumarol

022. Methotrexate acts by inhibiting:
(A) Cellular oxidation
(B) RNA Synthesis
(C) Cyanocobalamin
(D) Folate reductase

023. Alpha-fetoprotein level in serum is increased in
(A) Prostatic cancer
(B) Hepatoma
(C) Cancer lungs
(D) Nephritis

024. The metal present in Vitamin B12 is
(A) Copper
(B) Cobalt
(C) Chromium
(D) Manganese

025. The Hereditary fructose intolerance is usually manifested when child is about 6 months old, because at that age :

(A) Defective enzyme is produced in the liver

(B) Fructose is introduced in the diet

(C) Mother's milk is reduced

(D) Starch diet is being introduced

026. The lipid storage disease which manifests in adults is :

(A) Tay – Sach's disease

(B) Niemann-Pick's disease

(C) Sandhoff's disease

(D) Gaucher's disease

027. HbA differs from HbF in that :

(A) HbA has only alpha chains

(B) HbF cannot bind to 2, 3 BPG

(C) HbF can bind to only two molecules of oxygen

(D) HbA is alkali resistant

028. The major Calcium salt in bones is

(A) Calcium Carbonate

(B) Calcium hydroxide

(C) Calcium Chloride

(D) Calcium Phosphate

029. Which of the following hormone is also called as *somatostatin:*

(A) GHRH

(B) GHRIH

(C) GnRH

(D) PRIH

030. A specific DNA sequence can be identified in tissues by:

(A) Western blotting

(B) Florescent in situ hybridization

(C) Real time PCR

(D) Autoradiography

031. A physician would like to determine the global pattern of gene expression in two different types of tumor cells in order to develop most appropriate form of chemotherapy for each patient. Which of the following techniques would be most appropriate for this purpose:

(A) Enzyme linked Immunosorbent assay

(B) Microarray

(C) Northern blot

(D) Southern blot

032. Marker for carcinoid syndrome is :

(A) Carcino embryonic antigen

(B) Calcitonin

(C) CA 125

(D) Hydroxy indole acetic acid

033. Which of the following lab reports indicate poor glycemic control :

(A) PPBS – 160 mg/dL

(B) Serum cholesterol – 200 mg/dL

(C) Glycated haemoglobin of 9.5%

(D) Serum Creatinine 1.5 mg/dL

034. Acute intermittent porphyria is :

(A) Characterized by photo dermatitis

(B) An autosomal dominant trait

(C) More common in men than in women

(D) Hemolytic anemia is associated

035. Branched chain keto acids are excreted in urine in large quantities in:

(A) Phenyl ketonuria

(B) Maple syrup urine disease

(C) Hartnup's disease

(D) Alkaptonuria

036. A physician would like to determine the global pattern of gene expression in two different types of tumor cells in order to develop most appropriate form of chemotherapy for each patient. Which of the following techniques would be most appropriate for this purpose:

(A) Enzyme linked Immunosorbent assay (B) Microarray

(C) Northern blot (D) Southern blot

037. Which of the following diseases is due to an oncosuppressor mutation:

(A) Cystic fibrosis (B) Huntingtons chorea

(C) Sickle cell disease (D) Retinoblastoma

038. The lipid storage disorder characterized by cherry red spot in retina is:

(A) Gaucher's disease (B) Genaralised gangliosidoses

(C) Fabry's disease (D) Metachromatic leukodystrophy

039. The gluconeogenesis is taking place in :

(A) Brain (B) Liver

(C) Muscle (D) RBC

040. Excess intake of alcohol may produce lactic acidosis,because:

(A) Alcohol is oxidized to lactic acid

(B) Alcohol is oxidized to acetaldehyde and then to lactic acid

(C) NADH is generated, which converts pyruvate to lactate

(D) Ethanol induces Cori's cycle, by which lactic acid produced from muscle is taken to liver

041. The key enzyme in fatty acid synthesis is :

(A) Acetyl CoA carboxylase (B) Beta hydroxyl acyl dehydratase

(C) Enoyl reductase (D) Acetyl transacylase

042. Which of the following has strongest tendency to gain electrons:

(A) Coenzyme Q (B) Cytochrome C

(C) FAD (D) Oxygen

043. A 4-year old child who easily tries and has a trouble walking is diagnosed with Duchenne muscular dystrophy, an X-linked recessive disorder. Genetic analysis shows the patient's gene for muscle protein dystrophin contains a mutation in promoter region. Of the choices listed, which would be the most likely effect of this mutation.

(A) Initiation of dystrophin transcription will be defective.

(B) Termination of dystrophin transcription will be defective.

(C) Capping of dystrophin messenger RNA will be defective.

(D) Splicing of messenger RNA will be defective.

044. In prokaryotes DNA replication is inhibited by:

(A) Rifampicin (B) Ciprofloxacin

(C) Erythromycin (D) Streptomycin

045. Insulin receptor :

(A) Is made up of 4 similar sub units

(B) Is composed of extracellular sub units only

(C) Has binding site for insulin in all four subunits

(D) Possesses tyrosine kinase activity

046. Biotin is inhibited by

(A) Isoniazid(INH) (B) Methotrexate

(C) Dicoumarol (D) Avidin

047. Iodine number is used to assess

(A) Degree of unsaturation of fat (B) Chain length

(C) Molecular weight (D) Equivalent weight

048. A pharmaceutical company is studying a new antibiotic that inhibits bacterial protein synthesis.When this antibiotic is added in vitro protein synthesis system that is translating the messenger RNA sequence AUGUUUUUUUUAG, the only product formed is the peptide fMet-phe.What step in protein synthesis is most likely inhibited by the antibiotic?

(A) Initiation

(B) Binding of the charged transfer RNA to ribosomal A site

(C) Peptidyltransferase activity

(D) Ribosomal translocation

049. Which one of the following cytokines helps in the proliferation of T, B & NK cells

(A) IL-15 (B) IL-5

(C) IL-13 (D) IL-4

050. Rieske centre occurs in

(A) Coenzyme Q (B) FeS of complex III

(C) FeS of comples I (D) FeS of complex II

051. Which of the following is the most common type of hyper lipidemia in diabetes mellitus:

(A) Elevated triglycerides with normal cholesterol

(B) Normal triglycerides with elevated cholesterol

(C) Elevated cholesterol and decreased triglycerides

(D) Elevated cholesterol and triglycerides

052. Oncogenes are specific sequences in DNA :

(A) That are tumour markers (B) That code for reverse transcriptase

(C) When expressed produce cancer (D) Trigger off differentiation process

053. The complications of diabetes mellitus mainly result from :

(A) Non enzymatic glycation of proteins (B) Excess consumption of sugars

(C) Excretion of sugar in urine (D) Delayed secretion of glucagon

054. The enzyme defective in methyl malonyl aciduria :

(A) Propionyl CoA carboxylase (B) Methyl malonyl CoA mutase

(C) Tyrosinase (D) Cystathionine synthase

055. Death due to cyanide poisoning is a result of :

(A) Cyanide haemoglobin complex formation

(B) Cyanide inhibiting complex I of respiratory chain

(C) Cyanide inhibiting cytochrome oxidase

(D) Cyanide blocking oxygen transport in blood

056. Excess ingestion of alcohol may produce hypoglycemia, because ethanol :

(A) Inhibits gluconeogenesis

(B) Favours glycogen synthesis

(C) Increases secretion of insulin

(D) Inhibits absorption of glucose

057. Cataracts are formed due to accumulation of :

(A) Xylitol in essential pentosuria

(B) Galactitol (dulcitol) in galactosemia

(C) Mannitol in galactosemia

(D) Ribitol in renal glycosuria

058. Lysosomes are :

(A) Power house of the cell

(B) Bags of hydrolytic enzymes

(C) Store house for genetic information

(D) Interconnected channels in the cytoplasm.

059. Nano science can be studied with the help of

(A) Quantum mechanics

(B) Newtonian Mechanics

(C) Macrodynamics

(D) Geophysics.

060. An 8-month old male with severe anemia is found to have β-thalassemia.genetic analysis shows that one of his have β-globin gene has a mutation that creates a new splice acceptor site 19 nucleotide upstream of the normal splice acceptor site of the first intron. Which of the following best describes the new messenger RNA molecule that can be produced from this mutant gene.

(A) Exon 1 will be too short

(B) Exon 1 will be too long

(C) Exon 2 will be too short

(D) Exon 2 will be too long

061. Cystic fibrosis results from defective ion channels for

(A) Na^+

(B) Cl-

(C) Ca^{++}

(D) H^+

062. A blood sample was drawn from a patient for electrolyte estimation into a tube containing K^+ (EDTA), the analysed sample has high K^+ and low Ca^+ values the cause may be due to

(A) Collection of sample in a wrong vacutainer

(B) Chronic renal failure

(C) Some instrument pipetting problem

(D) Reporting Problem

063. Most powerful natural antioxidant is

(A) Vitamin A

(B) Vitamin D

(C) Vitamin E

(D) Vitamin K

064. The oxidation and phosphorylation in intact mitochondria is blocked by:

(A) Puromycin

(B) Oligomycin

(C) Gentamicin

(D) Streptomycin

065. In a solution having a pH of 7.4, the hydrogen ion concentration is

(A) 7.4 nmol/L (B) 40 nmol/L

(C) 56 nmol/L (D) 80 nmol/L

066. The gene associated with reduced risk of Familial Alzheimers disease is

(A) Apo E4 (B) Apo E2

(C) AD4 (D) AD3

067. The stimulation test of gastric analysis used to differentiate "true" achlorhydria from 'false' achlorhydria is :

(A) Alcohol (B) Caffeine

(C) Pentagastrin (D) Histamine

068. When we want to test the equality of variances of two normal populations, we make use of

(A) Z-test (B) t-test

(C) F-test (D) Chi square test

069. A glycoprotein in the bone that binds calcium, initiating mineralization and promoting mineral crystal formation is

(A) Osteocalcin (B) Osteopontin

(C) Osteonectin (D) Osteoprotegrin

070. The tendency of nonpolar compounds to self-associate in an aqueous environment is

(A) Covalent bond (B) Hydrophobic interaction

(C) Electrostatic interactions (D) Vanderwaals forces

071. The synthesis of RNA is abolished by inhibition of reverse transcriptase is

(A) Didanosine (B) Zanamavir

(C) Acyclovir (D) Amantadine

072. Synovial fluid contains

(A) Heparin (B) Hyaluronic acid

(C) Chondroitin sulphate (D) Keratin sulphate

073. Calnexin is

(A) Chaperone (B) Pyridine

(C) Transcription activator (D) Avidin

074. If the patient's gastric analysis shows total absence of free acidity and pepsin, the probable condition is:

(A) Achlorhydria (B) Hypochlorhydria

(C) Zollinger-Ellison (D) Achylia gastrica syndrome

075. Storage form of iron is:

(A) Transferrin (B) Ferritin

(C) Hepcidin (D) Hemosiderin

076. Menke's Kinky Hair syndrome is an X- linked defect with the transportation of one of the following mineral

(A) Iron (B) Selenium

(C) Magnesium (D) Copper

077. To test null hypothesis researchers use

(A) t-test (B) ANOVA

(C) X2 (D) Factorial analysis

078. The carbohydrate of the blood group substances is

(A) Sucrose (B) Fucose

(C) Arabinose (D) Maltose

079. The conjunctiva becomes dry, thick and wrinkled. The conjunctiva gets keratinized and loses its normal transparency. It's a feature of

(A) Bitots spots (B) Xerophthalmia

(C) Keratomalacia (D) Night blindness

080. A 25-year-old woman with a history that included hepatosplenomegaly with eventual removal of the spleen, bone and joint pain with several fractures of the femur, and a liver biopsy that showed wrinkled-looking cells with accumulations of glucosylceramides was presented at Grand Rounds. The likely diagnosis for this patient is:

(A) Fabry disease. (B) Farber disease.

(C) Gaucher disease. (D) Krabbe disease.

081. A DNA sequence that is recognized and cut by an enzyme at a restriction site is called

(A) Restriction endonuclease (B) Ligase

(C) Topoisomerase (D) Telomerase

082. Which of the following is the formula for pH calculation?

(A) log10[H+] (B) - log10[H+]

(C) log2[H+] (D) - log2[H+]

083. ADH test is based on the measurement of

(A) Specific gravity of urine (B) Concentration of urea in urine

(C) Concentration of urea in blood (D) Volume of urine in ml/minute

084. An integral membrane protein expressed on the surface of endothelial receptors is a cofactor in the thrombin induced activation of protein C is

(A) Thrombospondin 2 (B) Thrombomodulin

(C) TIMP – 1 (D) TGF

085. The most important aminoacid which acts as a source of substituted folates for biosynthetic reactions is

(A) Serine (B) Alanine

(C) Cysteine (D) Phenylalanine

086. Na+-K+-ATPase is the marker enzyme of

(A) Nucleus (B) Plasma membrane

(C) Golgi bodies (D) Cytosol

087. Which radioisotope is used for schilling test?

(A) Labelled iodine (B) Labelled folic acid

(C) Labelled chromium (D) Labelled B12

088. The researcher has to use facts or information already available, and analyze these to make a critical evaluation of the material.

(A) Applied Research
(B) Fundamental Research
(C) Descriptive Research
(D) Analytical Research

089. Pregnancy, oestrogen therapy and oral contraceptives characteristically:

(A) Cause hypothyroidism
(B) Have no effect on circulating T4 concentration
(C) Change levels of circulating free T4
(D) Increase circulating TBG

090. A teenager, concerned about his weight, attempts to maintain a fat-free diet for a period of several weeks. If his ability to synthesize various lipids were examined, he would be found to be most deficient in his ability to synthesize:

(A) Triacylglycerol.
(B) Phospholipids.
(C) Cholesterol.
(D) Sphingolipids.

091. The study of how one or more variables affect changes in another variable.

(A) Correlation Analysis
(B) Causal Analysis
(C) Descriptive Analysis
(D) Multivariate Analysis

092. $\kappa_2\gamma_2$ or $\lambda_2\gamma_2$ is the chain structure of

(A) IgG
(B) IgA
(C) IgM
(D) IgD

093. Most of metabolic pathways are either anabolic (synthetic) or catabolic (degradation). Which of the following pathways is considered as "amphibolic" in nature:

(A) Glycogenesis
(B) Glycolytic pathway
(C) Lipolysis
(D) Citric acid cycle

094. Microtubules are made up of which protein

(A) Tubulin
(B) Myosin
(C) Actin
(D) Fibrin

095. CNS and reticuloendothelial system is affected in

(A) Gauchers disease
(B) Niemann – Pick disease
(C) Sandoffs disease
(D) Lactosyl Ceramidoses

096. Circadian variations is peaked at 8am, low late evenings, changes with posture also. The sample to be collected in recumbent position is for

(A) Catecholamines
(B) Renin and aldosterone
(C) ACTH
(D) Growth hormone

097. The optimal ratio of omega 6 to omega 3 in diet is

(A) 4:1
(B) 1:4
(C) 5:1
(D) 1:5

098. The recent evidence of point mutation in the promoter region of UGTI gene results in

(A) Criggler – Najjar Syndrome Type I
(B) Gilberts disease
(C) Dubin Johnson syndrome
(D) Criggler – Najjar Syndrome Type II

099. A recessive condition where Zinc absorption is defective and is characterized by diarrhea.alopecia, ophthalmoplegia and hypogonadism is

(A) Keshans disease
(B) Acrodermatitis enteropathica
(C) Kaschinbeck disease
(D) Bantus siderosis

100. The "Primaquin sensitivity type" of haemolytic anaemia has been found to be related to reduced RB cells activity of which enzyme?

(A) Pyruvate kinase deficiency
(B) Glucose-6-phosphatase deficiency
(C) Glucose-6-P-dehydrogenase deficiency
(D) Hexokinase deficiency

101. Which of the following cannot be used as an adsorbent in column chromatography?

(A) Magnesium oxide
(B) Silica gel
(C) Activated alumina
(D) Potassium permangenate

102. Therapeutically optimum concentration of Lithium in plasma is

(A) 2-10µg/mL
(B) 7-10µg/mL
(C) 5-10µg/mL
(D) 1-10µg/mL

103. The F test

(A) Is essentially a two-tailed test
(B) Is essentially a one-tailed test
(C) Can be one or two-tailed depending on hypothesis
(D) Can never be one-tailed test

104. Normal renal plasma flow in healthy adults averages about:

(A) 125 ml/mt
(B) 200 ml/mt
(C) 450 ml/mt
(D) 574 ml/mt

105. Phytic acid is also called as

(A) Inositol mono phosphate
(B) Inositol di phosphate
(C) Inositol tri phosphate
(D) Inositol hexaphosphate

106. HER 2/neu is a

(A) Intracellular Adhesion molecule
(B) Zinc dependent endopeptidase
(C) Cell membrane surface bound receptor tyrosine kinase
(D) Mitogen activated protein kinase

107. Proliferation of the macrophages and natural killer cells and antiviral effects includes the function of

(A) IFN – alpha
(B) IFN – beta
(C) IFN – gamma
(D) TNF –alpha

108. Absence of dynein in cilia and flagella results in immotile cilia and flagella, leading to chronic respiratory syndrome and male infertility is

(A) Kartageners syndrome
(B) Marfans Syndrome
(C) Alport Syndrome
(D) Williams-Beuren Syndrome

109. Intestinal bacterial putrefaction of trypyophan results in the production of several indole compounds. The one excreted in feces is

(A) Indoxyl (B) Skatoxyl

(C) Indican (D) 5-hydroxyindole acetate

110. Inhibitors of protein synthesis in mammals is

(A) Chloramphenicol (B) Erythromycin

(C) Streptomycin (D) Puromycin

111. The Caspase which hydrolyses certain target proteins maintaining the cytoskeleton, ultimately leading to death is

(A) Caspase 1 (B) Caspase 3

(C) Caspase 9 (D) Caspase 7

112. The method to detect those tumour markers which are present only on cell-membranes and cytoplasm of cells and not in blood circulation include

(A) Radio immunoassay (B) Immunochemical reactions

(C) Immunocytological method (D) Enzyme immunoassay

113. In which of the following conditions the plasma activities of both ALP and GGT are likely to be increased:

(A) Carcinoma of prostrate (B) Infectious hepatitis

(C) Osteomalacia (D) Alcoholic cirrhosis

114. The fraction of plasma passing through the kidney which is filtered at the glomerulus and is obtained by dividing the inulin clearance by the PAH clearance.

(A) Filtration Fraction (B) Glomerular Filtration Rate

(C) Creatinine Clearance (D) Renal Plasma Flow

115. Na^+- glucose transport is an example of

(A) Facilitated diffusion (B) Primary active transport

(C) Secondary symport active transport (D) Secondary antiport active transport

116. Mucopolysaccharidosis are inherited storage diseases. They are caused by:

(A) an increased rate of synthesis of proteoglycans.

(B) the synthesis of polysaccharides with an altered structure.

(C) defects in the degradation of proteoglycans.

(D) the synthesis of abnormally small amounts of protein cores.

117. The molecular basis of the chondrodysplasias include mutations in genes encoding & fibroblast growth factor receptors is

(A) Collagen I (B) Collagen II

(C) Collagen III (D) Collagen IV

118. The first class of antibody to appear in the serum after exposure to an antigen is

(A) IgG (B) IgA

(C) IgM (D) IgD

119. Hypokalemic alkalosis is the feature of

(A) Conns Syndrome
(B) Addisons diseases
(C) Cushings syndrome
(D) Galactosemia

120. Deletion of gene for elastin in Chromosome 7 leads to severe developmental abnormalities in connective tissue all over the body is

(A) Kartageners syndrome
(B) Marfans Syndrome
(C) Alport Syndrome
(D) Williams-Beuren Syndrome

121. Deficiency of GlcNAc phosphotransferase, resulting in abnormal targeting of certain lysosomal enzymes leads to

(A) Cancer
(B) HEMPAS
(C) I cell disease
(D) PNH

122. The immunoglobulin involved in the anaphylaxis is:

(A) IgG
(B) IgE
(C) IgA
(D) IgD

123. Loss of water by insensible perspiration through the skin in 24 hours is:

(A) 200–400 ml
(B) 400–600 ml
(C) 600–800 ml
(D) 800–1000 ml

124. Which one of the following statements about the urea cycle is correct?

(A) The two nitrogen atoms that are incorporated into urea enter the cycle as ammonia and alanine.
(B) Urea is produced directly by the hydrolysis of ornithine.
(C) ATP is required for the reaction in which argininosuccinate is cleaved to form arginine.
(D) Urinary urea is increased by a diet rich in protein.

125. Natural radioactive element belong to one of the series containing:

(A) Uranium
(B) Calcium
(C) Fluoride
(D) Magnesium

126. A potent secretogogue of NaCl and water in the intestine and pancreas is

(A) Somatostatin
(B) Vasoactive intestinal polypeptide
(C) Secretin
(D) Pancreatic polypeptide

127. Which of the following is best described as cis acting :

(A) Cyclic AMP response element-binding protein
(B) Operator
(C) Repressor protein
(D) Thyroid hormone nuclear receptor

128. Two sugars which differ from one another only in configuration around a single carbon atom are

(A) Epimers
(B) Anomers
(C) Optical isomers
(D) Stereoisomers

129. Hemorrhagic disease of the newborn is attributed to deficiency of

(A) Vitamin A (B) Vitamin D

(C) Vitamin E (D) Vitamin K

130. Homocysteinemia may be due to deficiency of

(A) Niacin (B) Biotin

(C) Folic Acid (D) Riboflavin

131. In erythrocyte, glucose transport is an example of

(A) Simple diffusion (B) Active transport

(C) Facilitated diffusion (D) Ion driven active transport

132. Whole wheat is an excellent source of:

(A) Vitamin A (B) Vitamin D

(C) Ascorbic acid (D) Thiamine

133. A one-week-old male infant with undetected classic Phenylketonuria has

(A) Low levels of Phenyl pyruvate in urine

(B) High levels of phenylpyruvate in urine

(C) High levels of Homogentisic acid in urine

(D) Low levels of Homogentisic acid in urine

134. Acetylation is known to occur on lysine residues in the amino terminal tails of histone molecules by

(A) Threonine (B) Glutamic Acid

(C) Histidine (D) Lysine

135. The technique that combines the use of restriction enzymes, electrophoresis, and DNA probes to generate, separate, and detect pieces of DNA is

(A) Northern Blot technique (B) Sothern Blot Technique

(C) Western Blot technique (D) Eastern Blot Technique

136. Independent variables that are not related to the purpose of the study, but may affect the dependent variable is

(A) Discrete Variable (B) Extraneous Variable

(C) Continuous Variable (D) Discontinous Variable

137. In which of the following, glucose transport into the cell is enhanced by insulin.

(A) Brain (B) Lens

(C) Red blood cells (D) Adipose tissue

138. Increased formation of ketone bodies during fasting is a result of:

(A) Decreased levels of circulating glucagon

(B) Decreased formation of acetyl CoA in the liver

(C) Increased levels of free fatty acids in serum

(D) Inhibition of β-oxidation of fatty acids in the liver

139. Specific Lectin which play a key role in inflammation & Lymphocyte Homing is

(A) Selectins (B) Calnexin

(C) Integrins (D) Immunoglobulin

140. In pure salt depletion (secondary dehydration) ECF becomes:

(A) Hypertonic (B) Hypotonic

(C) Isotonic (D) Normotonic

141. Xeroderma pigmentosum is due to defect in the DNA repair mechanism

(A) Recognition and excision of dimers by UV-specific endonuclease

(B) Nucleotide excision repair of UV damage in humans

(C) Repair of base alterations (base excision repair)

(D) Repair of double-strand break

142. Vitamin K is inhibited by

(A) Isoniazid (INH) (B) Methotrexate

(C) Dicoumarol (D) Avidin

143. Left-handed helix that contains 12 base pairs per turn is

(A) Z - DNA (B) A - DNA

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

144. Which of the following transport induces conformational change in protein

(A) Simplediffusion (B) Active transport

(C) Facilitated diffusion (D) Passive transport

145. Which of the following oxidation-reduction systems has highest redox-potential?

(A) Fe3+ cytochrome b/Fe2+ (B) Fe3+ cytochrome a/Fe2+

(C) Fumarate/succinate (D) Ubiquinone ox/red

146. Which one of the following decreases the oxidation of acetyl CoA by the citric acid cycle :

(A) low ATP/ADP ratio

(B) low NADH due to rapid oxidization to NAD^+ through the respiratory chain

(C) low NAD^+/NADH ratio

(D) high concentration of AMP

147. A galactosemic female is able to produce lactose because:

(A) free (nonphosphorylated) galactose is the acceptor of glucose transferred by lactose synthase in the synthesis of lactose.

(B) galactose can be produced from a glucose metabolite by epimerization.

(C) hexokinase can efficiently phosphorylate dietary galactose to galactose 1-phosphate.

(D) the enzyme deficient in galactosemia is activated by a hormone produced in the mammary gland.

148. Which of the following is the basis for the intestine-specific expression of apoprotein B?

(A) DNA rearrangement and loss (B) DNA transposition

(C) RNA alternative splicing (D) RNA editing

149. Major site of RNA synthesis is

(A) Nucleoplasm
(B) Nucleolus
(C) Nucleus
(D) Lysosomes

150. The substitution of an incorrect amino acid is

(A) Silent mutation
(B) Missense mutation
(C) Nonsense mutation
(D) Frame-shift mutations

151. Zinc containing enzyme is

(A) Tyrosinase
(B) Amylase
(C) Carbonic anhydrase
(D) Superoxide Dismutase

152. "Proofreading" the newly synthesized DNA strand is an exonuclease property of

(A) DNA polymerase I
(B) DNA polymerase II
(C) DNA polymerase III
(D) DNA gyrase

153. Which technique is used to analyze colloidal system?

(A) Nephelometry
(B) Colorimetry
(C) Chemiluminiescent
(D) Photometric

154. Which one of the following statements regarding vitamin B_{12} is correct?

(A) The cofactor form is vitamin B_{12} itself.
(B) It is involved in the transfer of amino groups.
(C) It requires a specific glycoprotein for its absorption.
(D) It is present in plant products.

155. The synthesis of glucose from pyruvate by gluconeogenesis:

(A) occurs exclusively in the cytosol.
(B) is inhibited by an elevated level of glucagon.
(C) requires the participation of biotin.
(D) involves lactate as an intermediate

156. Plasma membrane is

(A) Composed entirely of Lipids
(B) Mainly made of Proteins
(C) Mainly made of Proteins and lipids
(D) Composed of only Carbohydrates and lipids

157. The sodium pump

(A) Exchanges extracellular Na+ for intracellular K+
(B) Is important for maintaining a constant cell volume
(C) Can only be inhibited by metabolic poisons
(D) Is an ion channel

158. Bibilography given in a research report

(A) Show vast knowledge of the researcher

(B) Helps those interested in further research

(C) Has no relevance to research

(D) All of the above

159. This protein factor identifies the promoter of protein-coding genes in eukaryotes.

(A) Pribnow box (B) Rho

(C) Sigma (D) Transcription Factor IID

160. A peptide bond:

(A) has a partial double-bond character.

(B) is ionized at physiologic pH.

(C) is cleaved by agents that denature proteins, such as organic solvents and high concentrations of urea.

(D) is stable to heating in strong acids

161. Porphyrins are :

(A) Mono pyrroles (B) Colorless components

(C) Showing florescence under UV light (D) Destroyed by sun light

162. Pyridoxal phosphate is the co enzyme for

(A) Transamination reactions (B) Carboxylation reactions

(C) Pyruvate dehydrogenase reactions (D) L amino acid oxidase reactions

163. Glucose 6 phosphatase is a marker enzyme present in :

(A) Cytoplasm (B) Mitochondria

(C) Lysosomes (D) Microsomes

164. Marker for medullary thyroid carcinoma :

(A) Carcino embryonic antigen (B) Calcitonin

(C) Alkaline phosphatase (D) Hydroxy indole acetic acid

165. Glossitis is due to deficiency of

(A) Niacin (B) Thiamine

(C) Riboflavin (D) Vitamin B12

166. The deficiency of glucose 6 phosphate dehydrogenase causes :

(A) Cataract (B) Hemolytic anaemia

(C) Hypoglycemia (D) Mental retardation

167. Phagocytosis involves :

(A) Respiratory burst (B) Lipid peroxidation

(C) Alpha oxidation (D) Endosmosis

168. The following is used as a tool to scan for point mutations

(A) Single stranded confirmation polymorphism(SSCP)

(B) Heteroduplex analysis

(C) Protein truncation test

(D) Ames test

169. BMR is increased in

(A) Hyperthyroidism (B) Hypothyroidism

(C) Anaemia (D) Obesity

170. Specific dynamic action of Carbohydrates is about

(A) 5% (B) 13%

(C) 20% (D) 30%

171. Which of the technique listed below is used in Gene Xpert?

(A) Nested PCR (B) Multiplex PCR

(C) RT-PCR (D) Real time PCR

172. The mechanism of anti inflammatory action of aspirin is that it:

(A) Reversibly inhibits cyclooxygenase (B) Irreversibly inhibits cyclooxygenase

(C) Inhibits phospholipase (D) Inhibits lipooxygenase

173. The enzyme defect in Von Gierke's disease is :

(A) Glucose 6 phosphatase (B) Muscle phosphorylase

(C) Liver phosphorylase (D) Liver phosphorylase kinase

174. The ZYA region of lac operon will be maximally expressed if:

(A) Cyclic AMP levels are low

(B) Glucose and lactose both are available

(C) The attenuation stem-loop is able to form

(D) The CAP site is occupied

175. The RNA present in largest amount in a cell at any time is

(A) mRNA (B) tRNA

(C) rRNA (D) hnRNA

176. The content of MUFA is more in

(A) Coconut oil (B) Ghee

(C) Sunflower oil (D) Groundnut oil

177. Fidelity of replication is ensured by:

(A) Complementary base pairing

(B) Specificity of DNA polymerase

(C) Recognition of specific nucleotide sequence

(D) Formation of phosphodiester bonds

178. The normal range of Plasma Copper is

(A) 25-50mcg/dl (B) 300-400mcg/dl

(C) 70-150mcg/dl (D) 200-400mcg/dl

179. Which one of the following is a Recombinant Vaccine:

(A) Hepatitis B (B) Rabies

(C) MMR (D) DPT

180. Serum Potassium level increases in

(A) Vomiting (B) Addisons disease

(C) Diarrhoea (D) Cushing syndrome

181. Immature T cells migrate to which of the following organ & mature there :

(A) Bone marrow (B) Spleen

(C) Thymus (D) Lymph nodes

182. The following type of electrophoresis is used to analyse samples of antigen & antibodies

(A) Immunoelectrophoresis (B) isoelectric focusing

(C) Polyacrylamide gel electrophoresis (D) Paper Electrophoresis

183. Which of the following isotope is used for bone studies:

(A) Strontium ^{90}Sr (B) Technetium ^{99}Te

(C) Carbon ^{14}C (D) Iodine ^{131}I

184. Which of the following has the highest Glycemic index

(A) Rice (B) Table sugar

(C) Icecream (D) Legumes

185. A child with Kwashiorkar may have the following clinical feature :

(A) Hypoalbuminemia (B) Hypercalcemia

(C) Hyperalbuminemia (D) Hyperglycemia

186. The insulin secretion is mainly controlled by :

(A) Blood lipid level (B) Hypothalamic mechanism

(C) HCL secretion in stomach (D) Glucose level in blood

187. According to definition by CRN (centre for responsible nanotechnology) nanotechnology is

(A) Mechanical Engineering (B) Atomic Engineering

(C) Newtonian Mechanics (D) Micro Elecrtronics

188. Regarding DNA structure which is not correct:

(A) Two strands are covalently bonded. (B) Two strands are anti parallel

(C) Strands have polarity (D) Strands are complimentary to each other

189. Patients with estrogen receptor - positive (hormone responsive) breast cancer may be treated with drug tamoxifen,which binds the estrogen receptor without activating it.Which of the following is the most logical outcome of tamoxifen use.

(A) Increased acetylation of estrogen - responsive genes

(B) Increased growth of estrogen receptor - positive breast cancer cells

(C) Increased production of cyclic AMP

(D) Inhibition of transcription of estrogen - responsive genes

190. The insulin favours:

(A) Ketogenesis (B) Gluconeogenesis

(C) Glycogen synthesis (D) Protein breakdown

191. Which of the following enzyme catalysed reaction generate $NADPH+H^+$ molecules :

(A) Pyruvate dehydrogenase
(B) Lactate dehydrogenase
(C) Pyruvate carboxylase
(D) Glucose 6 phosphate dehydrogenase

192. The chain elongation of the fatty acids takes place in which of the following subcellular fraction :

(A) Nucleus
(B) Microsomes
(C) Golgicomplex
(D) Cytoplasm

193. Ammonia is trapped in brain by :

(A) Glutamine synthetase reaction
(B) Glutaminase reaction
(C) Urea synthesis cycle
(D) Glutamate dehydrogenase reaction

194. From the pairs of inborn errors of metabolism and screening tests, pick out the mismatched pair :

(A) Homocysteinurea and Cetyl pyridinium chloride test
(B) Phenyl ketonuria and Ferric chloride test
(C) Maple syrup urine disease and DNPH test
(D) Hartnup's disease and Obermayer test

195. Key enzyme of cholesterol biosynthesis is :

(A) HMG CoA synthase
(B) HMG CoA lyase
(C) HMG CoA reductase
(D) Thiokinase

196. Which of the following reaction replenishes a TCA cycle intermediate:

(A) Heme synthesis
(B) Transamination of oxaloacetate
(C) Carboxylation of pyruvate
(D) Reutilization of ketone bodies

197. Function of albumin is the transport of :

(A) Triglycerides from intestine to adipose
(B) Cholesterol from liver to peripheral tissue
(C) Cholesterol from peripheral tissue to liver
(D) Free fatty acids (NEFA) from adipose tissue to peripheral tissues

198. The enzyme which is active only in liver is :

(A) HMG CoA reductase
(B) Carnitine acyl transferase
(C) Lecithin cholesterol acyl transferase
(D) HMG CoA lyase

199. Glucokinase is more active after a meal because :

(A) It has higher Km for glucose than hexokinase
(B) It has more affinity for glucose than hexokinase
(C) It is present in all tissues
(D) Can act on all monosaccharides

200. The factor which stimulate rennin release :

(A) Increase blood pressure
(B) Excess salt
(C) Angiotensin – II
(D) Prostaglandins