Vitamins and Minerals MCQ

A MCQ collection from various sources

Vikas Bhardwaj

Biochemistry

Introduction

Welcome to **Vitamin and Minerals MCQ**, a comprehensive question bank designed to enhance your understanding of microbiology. This ebook contains over 300+ multiple-choice questions (MCQs) covering a wide array of topics within the field of Vitamins and Minerals.

Whether you're a medical student preparing for exams, a postgraduate aspirant aiming for success in competitive entrance tests, or a healthcare professional looking to refine your expertise, this book will serve as an invaluable resource in your learning journey. The questions in this ebook are structured to reflect the patterns seen in major medical entrance exams such as NEET PG, USMLE, AIIMS, and others, making it a perfect tool for self-assessment and revision.

Purpose

The primary goal of this ebook is to provide a reliable and extensive resource that students and professionals can use to test their knowledge, improve their diagnostic skills, and solidify key microbiological concepts. With the included detailed answers and explanations, this book goes beyond just helping you answer questions — it enables you to understand the reasoning behind each answer, facilitating deeper learning.

How This Ebook Can Help You

- **For Students**: The MCQs in this book are designed to match the rigor and format of real exam questions. By practicing regularly, you'll not only enhance your knowledge but also gain confidence in approaching exam challenges.
- **For Professionals**: This ebook helps professionals stay updated with the latest developments in clinical microbiology and refresh critical concepts required in day-to-day practice.
- **For Educators**: Teachers and educators can use this collection to formulate quizzes, exams, or as supplementary teaching material for their students.

Compilation and Sources

This ebook is a compilation of publicly available online content. Each question has been carefully selected and curated to ensure relevance and accuracy. While this material is sourced from multiple platforms, it has been reorganized and edited to provide a streamlined learning experience.

We hope this book becomes an essential part of your academic and professional toolkit, helping you achieve your goals in Biochemistry.

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Questions

1-: Which vitamin is supplied from only animal source:

1: Vitamin C

2: Vitamin B7

3: Vitamin B12

4: Vitamin D

2-: Which of the following vitamin reduces the risk of insulin resistance, obesity, and the metabolic syndrome?

1: Vitamin A

2: Vitamin C

3: Vitamin D

4: Vitamin B12

3-: Which of the following vitamin enhances intestinal absorption of calcium?

1: Vitamin D

2: Vitamin K

3: Vitamin B1

4: Vitamin B2

4-: SACD (Subacute combined degeneration of cord) is feature of which vitamin deficiency?

1: Vitamin A

2: Vitamin B6

3: Vitamin B9

4: Vitamin B12

5-: A 10-year-old boy presents with increase bilirubin, increased bilirubin in urine and no urobilinogen Diagnosis is:

1: Gilbert syndrome

2: Hemolytic jaundice

3: Viral hepatitis

4: Obstructive jaundice

6-: Excess of avidin causes deficiency of:

1: Folate

2: Choline

3: Vitamin B12

4: Biotin

7-: Glutathione requires which vitamin to act as antioxidant -

1: Vitamin E

2: Niacin

3: Vitamin C

4: Vitamin A

8-: vitamin involved in 1 carbon metabolism

1: Folic acid

2: Thiamine

3: biotin

4: niacin

9-: Which dietary deficiency of a vitamin can cause Pellagra.

1: Vitamin C

2: Niacin

3: Vitamin D

4: Biotin

10-: Which Vitamin is involved in Redox reactions -

1: Pyridoxin

2: Biotin

3: Folic acid

4: Riboflavin

11-: Biotin deficiency is due to

1: Avidin

2: Flavoproteins

3: Metallo flavoproteins

4: Oxireductase

12-: The main function of Vitamin C in the body is -

1: Coenzyme for energy metabolism

2: Regulation of lipid synthesis

3: Involvement as antioxidant

4: Inhibition of cell growth

13-: FIGLU excretion test is used for assessment of deficiency of -

1: VitaminBn

2: Niacin

3: Folic acid

4: Pyridoxin

14-: All are antioxidant except -

1: Vitamin A

2: Catalase

3: Cystein

4: Glutamine

15-: Richest source of retinoids is?

1: Cod liver oil

2: Halibut liver oil

3: Butter

4: Margarine

16-: Which of the following protein binds to free heme?

1: Ceruloplasmin

2: Haptoglobin

3: Hemopexin

4: Hemosiderin

17-: Gastrectomy produces deficiency of which vitamin -

1: VitaminB6

2: Vitamin B12

3: Vitamin B2

4: Vitamin B1

18-: Patient present with severe energy deficiency. Which of the following vitamin might be deficient in this patient?

1: Pyridoxine

2: Riboflavin

3: Thiamin

4: Folic acid

19-: FIGLU Test is used for deficiency of -

1: Vitamin B ,

2: Riboflavin

3: Niacin

4: Folic acid

20-: Which of the following acts as a coenzyme in carboxylation reaction?

1: Riboflavin

2: Niacin

3: Biotin

4: Pantothenic acid

21-: 1, 25 (OH)2 Cholecalciferol is formed in-

1: Skin

2: Liver

3: Spleen

4: Kidney

22-: Richest source of vitamin C -

1: Guava

2: Lime

3: Orange

4: Tomato

23-: Post-translational modification of clotting factors requires

1: Vitamin A

2: Vitamin B

3: Vitamin E

4: Vitamin K

24-: Vitamin acting on intranuclear receptors -

1: Vitamin K

2: Vitamin D

3: Vitamin E

4: Vitamin B1

25-: Thiamine is coenzyme for all the following enzymes except

1: a-ketoglutarate dehydrogenase

2: Pyruvate dehydrogenase

3: Succinate dehydrogenase

4: Transketolase

26-: Scurvy is due to deficiency of

1: Vitamin C

2: Vitamin A

3: Vitamin K

4: Vitamin E

27-: Which enzyme deficiency causes tyrosinemia type 1?

1: Fumaryl acetoacetate hydrolase

2: Tyrosine transaminase

3: HGA oxidase

4: Tyrosinase

28-: Enzyme-deficient in lactic acidosis caused by thiamine deficiency is?

1: Pyruvate dehydrogenase

2: Succinate thiokinase

3: Cis aconitase

4: Isocitrate dehydrogenase

29-: Inheritance pattern of G6PD:

1: AR

2: AD

3: X-linked

4: Familial

30-: Which of the following is strictly not a vitamin?

1: Thiamine

2: Riboflavin

3: Niacin

4: Cobalamin

31-: False statement regarding vitamin k is?

1: Vitamin K is a fat-soluble vitamin

2: Prolonged use of antibiotics leads to vitamin K deficiency

3: Menaquinone is the dietary source of vitamin K found in green vegetables.

4: vitamin k deficiency leads to bleeding disorders.

32-: , Which of the following is a component of the visual pigment rhodopsin -

1: b-Carotene

2: Retinal

3: Retinol

4: Retinoic acid

33-: Which element is present in Glutathione peroxidase?

1: Selenium

2: Zinc

3: Magnesium

4: Copper

34-: Uncontrolled phagocytosis of oxidized LDL paicles is a major stimulus for the development of foam cells and fatty streaks in the vascular subendothelium. This process may be inhibited by increased dietary intake of

1: vitamin E

2: vitamin B6

3: vitamin D

4: vitamin B12

35-: Menadione is analog of:

1: Vitamin K

2: Vitamin A

3: Vitamin D

4: Vitamin C

36-: Which of the following is vitamin B-complex disease

1: Scurvy

2: Pellegra

3: Night blindness

4: Rickets

37-: What type of anemia is seen in B12 deficiency:

1: Normocytic

2: Macrocytic

3: Microcytic

4: Dimorphic

38-: 2,3 DPG binds to sites in hemoglobin and causes in its oxygen affinity:

1: Four, increases

2: Four, decreases

3: One, increases

4: One, decreases

39-: A deficiency of substance B12 can result in an anemia. Choose the type of anemia that would occur if the substance were deficient.

1: Megaloblastic anemia

2: Hypochromic, microcytic anemia

3: Hemolytic anemia

4: Sickle cell anemia

40-: Vitamin B12 absorption occurs in

1: Ileum

2: Jejunum

3: Duodenum

4: Colon

41-: Which of the following vitamin has a role in the regulation of gene expression and tissue differentiation?

1: Vitamin A

2: Vitamin C

3: Vitamin K

4: Vitamin B12

42-: Glutathione requires which vitamin to act as antioxidant

1: Vitamin E

2: Niacin

3: Vitamin C

4: Vitamin A

43-: Casal's necklace' is seen in the following disease

1: Beri-Beri

2: Scurvy

3: Pernicious anemia

4: Pellagra

44-: All the following clotting factors are dependent on vitamin K for their activity Except

1: II

2: V

3: VII

4: IX

45-: Vitamin A is present in all EXCEPT:

1: Sunflower seeds

2: Egg

3: Milk

4: Tomato

46-: The active form of vitamin A is:

1: Retinal

2: Retinol

3: Retinoic acid

4: Etretine

47-: In vitamin B12 deficiency, folate is trapped in the form of

1: Formyl THFA

2: Methenyl THFA

3: Methyl-THFA

4: Methylene-THFA

48-: Pantothenic acid containing coenzyme is involved in:

1: Carboxylation

2: Acetylation

3: Decarboxylation

4: Dehydrogenation

49-: Thiamine deficiency causes decreased energy production because rpt Q18

1: It is required for the process of transamination

2: It is co-factor in oxidative reduction

3: It is co-enzyme for transketolase in pentose phosphate pathway

4: It is co-enzyme for pyruvate dehydrogenase

50-: All of the following are watersoluble radical trapping antioxidants except?

1: Ascorbate

2: Carotenes

3: uric acid

4: Polyphenols

51-: All of the following require pyridoxine as a co-factor except?

1: ALA synthase

2: Transamination

3: Glycogen phosphorylase

4: Transketolase

52-: Neurological worsening with anemia what is the treatment to be given:

1: Iron

2: Folic Acid alone

3: Folic acid along with Hydroxycobalamin

4: Vitamin B1 alone

53-: Which of the following is a component of the visual pigment rhodopsin?

1: b-Carotene

2: Retinal

3: Ret

4: Retinoic acid

54-: The following statement about magnesium are true except:(2000)

1: It is the second most common intracellular electrolyte

2: It plays a major role in glycolysis

3: Sixty percent of body magnesium is in bone

4: Most of the intracellular magnesium is in the muscle

55-: Hemolytic anemia is associated with a deficiency of which of the following vitamins?

1: Vitamin D

2: Vitamin K

3: Vitamin C

4: Vitamin E

56-: Vitamin B12 is essential in what aspect of blood cell reproduction?

1: Formation of hemoglobin

2: Extrusion of the nucleus from the normoblasts

3: Formation of DNA

4: Activation of erythropoietin

57-: What condition is caused by iodine deficiency during pregnancy and is characterized by stunted growth, deafness, and mental retardation?

1: Cretinism

2: Keshan disease

3: Multiple sclerosis

4: Crohn's disease

58-: Vitamin synthesised from amino acid is

1: Thiamine

2: Ribolflavin

3: Biotin

4: Niacin

59-: What is the other name of Hallervorden-Spatz syndrome?

1: Mitochondrial encephalomyopathy; Lactic acidosis; Stroke

2: Pantothenate kinase - associated neurodegeneration

3: Thiamine-responsive megaloblastic anemia syndrome

4: Riboflavin sensitive myopathy

60-: In folic acid deficiency which of the following is excreted in urine -

1: Kynurenine

2: Xantheurenic acid

3: F1GLU

4: Methylmalonate

61-: Which of the following Vitamin deficiency is responsible for functional Folate deficiency ?

1: Vitamin B1

2: Vitamin B2

3: Vitamin B6

4: Vitamin B12

62-: Methylcobalamin is required for which of the following enzymes:

1: Homocysteine deaminase

2: Homocysteine methyl transferase

3: Methionine synthase

4: Methionine reductase

63-: In vitamin C deficiency, post translational modification of which amino acid is defective:

1: Lysine

2: Alanine

3: Glycine

4: Arginine.

64-: Vitamin C cannot be produced in humans due to lack of:

1: L-gulonolactone oxidase

2: Xylutitol reductase

3: Pyruvate dehydrogenase

4: UDP glucose dehydrogenase

65-: Which does not requires BIOTIN?

1: Acetyl CoA to Malonyl CoA

2: Pyruvate to Oxaloacetate

3: Glutamate to GABA

4: Propionyl CoA to Methyl Malonyl CoA

66-: Impaired Glucose intolerance is caused by deficiency of

1: Chromium

2: Selenium

3: Copper

4: Cobalt

67-: The following is due to deficiency of

1: Vitamin A

2: Vitamin B1

3: Vitamin C

4: Vitamin D

68-: B12 is needed in which step of folate synthesis

1: Tetrahydrofolate to folinic acid

2: Methyl tetrahydrofolate to tetrahydrofolate

3: Formyl tetrahydrofolate to tetrahydrofolate

4: Methylene tetrahydrofolate to methyltetrahydrofolate

69-: FIGLU is a metabolite of

1: Folic acid

2: Histidine

3: Tyrosine

4: Alanine

70-: Keshan disease caused by-

1: Selenium

2: Magnesium

3: zinc

4: Molybdenum

71-: Steroidal prohormone is:

1: Vitamin A

2: Vitamin C

3: Vitamin D

4: None of these

72-: Vit B1 is a cofactor for-

1: Transketolase

2: Transaldolase

3: AldolaseA

4: Aldolase B

73-: Vitamin E deficiency causes all EXCEPT:

1: Ataxia

2: Neuropathy

3: Megaloblastic anemia

4: Ophthalmoplegia

74-: No of iron in ferritin:

1: 4

2: 40

3: 400

4: 4000

75-: Not seen in the thiamine deficiency

1: Cerebellar dysfunction

2: Amnesia

3: Confabulation

4: Nystagmus

76-: Thiamine deficiency causes lactic acidosis due to defect in the action of?

1: Alpha - KG dehydrogenase

2: Sorbitol reductase

3: Lactate dehydrogenase

4: Pyruvate dehydrogenase

77-: Thiamine deficiency, the thiamine level is best monitored by

1: Tansketolase level in serum

2: Transketolase level in RBC

3: Trans aminase level in serum

4: Trans aminase level in RBC

78-: Tryptophan is required for synthesis of which vitamin?

1: Folic acid

2: Thiamine

3: Niacin

4: Riboflavin

79-: PLP is not required for:

1: Cystathionine b synthase

2: Glutamate decarboxylase

3: Aspaate transaminase

4: Glucose 6 phosphate dehydrogenase

80-: Pellagra is caused bv deficiencv of which vitamin -

1: B2

2: B3

3: B1

4: Folic acid

81-: Which of the following elements is known to influence the body's ability to handle oxidative stress?

1: Fluride

2: Iron

3: Copper

4: Selenium

82-: Vit K is needed for which of these post transational modification processes-

1: Methylation

2: Carboxylation

3: Hydroxylation

4: Transketolation

83-: Which of the following is the most important vitamin D precursor?

1: Alfa-calcidiol

2: 25 Hydroxy-cholecalciferol

3: Ergostrol

4: 1-25 dihydroxy cholecalciferol

84-: All the following coenzymes are derivative of B-complex vitamins, Except

1: S-adenosylmethionine

2: NAD+

3: Pyridoxal phosphate

4: Coenzyme A

85-: Not seen in hypervitaminosis

1: Alopecia

2: Polyuria

3: Pseudo tumor cerebri

4: Hyperostosis

86-: Which vitamin is required for transfer of 1-carbon unit?

1: Vitamin A

2: Folic acid

3: Vitamin B12

4: Niacin

87-: Thiamin is a co-enzyme for

1: Transketolase

2: Alanine transferase

3: ALA synthase

4: Cystathionine synthase

88-: Which of the following Vitamins has been evaluated for the treatment of Fish odour syndrome:

1: Ribofalvin

2: Thiamine

3: Biotin

4: Niacin

89-: 1,25 (OH)2 is formed in -

1: Skin

2: Liver

3: Spleed

4: Kidney

90-: The mineral having action like vitamin E -

1: Calcium

2: Iron

3: Selenium

4: Magnesium

91-: Post-translation carboxylation of clotting factors requires

1: Vitamin C

2: Vitamin K

3: Vitamin A

4: Vitamin D

92-: Thiamin status of an individual can be detected by which of the following tests/enzymes in erythrocytes?

1: Transaldolase

2: Glucose-6-phosphatase

3: Transketolase

4: Enolase

93-: Which of the following protein has ferroxidase activity?

1: Albumin

2: Ceruloplasmin

3: Haptoglobin

4: Transferrin

94-: Which of the following is the synthetic vitamer of vitamin K?

1: Phylloquinone

2: Menaquinone

3: Menadione

4: All of the above

95-: Which of the following mineral can induce the synthesis of metallothionein?

1: Zinc

2: Calcium

3: Iron

4: Phosphorous

96-: Which dietary deficiency of a vitamin can cause Rickets.

1: Vitamin C

2: Niacin

3: Vitamin D

4: Biotin

97-: Diagnosis of vitamin B1 deficiency is made by

1: Thiamine level

2: Transketolase activity

3: Carboxylase activity

4: Transaminase activity

98-: Hepcidin associated with which molecule-

1: Iron

2: Copper

3: Selenium

4: Flurine

99-: Vitamin E is responsible for all the following Except

1: It prevents lipid peroxidation in biological membrances

2: It prevents RBC from hemolysis

3: It is considered to be anti-sterility vitamin

4: It ours the oxidation of low-density lipoproteins

100-: Antibiotic abuse can induce the deficiency of the following vitamin

1: Thiamine

2: Niacin

3: Vitamin K

4: Vitamin E

101-: A girl licks paint that is peeled of from the toys, develop acute abdominal pain, tingling sensation of hands and legs and weakness. Which enzyme is inhibited in this child?

1: ALA synthase

2: Heme oxygenase

3: Coproporphyrinogen oxidase

4: ALA dehydratase

102-: Iron is absorbed in

1: Stomach

2: Duodenum

3: Jejunum and ileum

4: Colon

103-: Biotin is needed in

1: Krebs cycle

2: Urea cycle

3: Fatty acid synthesis

4: Pyruvate dehydrogenase

104-: A deficiency of substance Folate can result in an anemia. Choose the type of anemia that would occur if the substance were deficient.

1: Megaloblastic anemia

2: Hypochromic, microcytic anemia

3: Hemolytic anemia

4: Sickle cell anemia

105-: Which of the following Vitamin is an antioxidant?

1: Vitamin D

2: Vitamin E

3: Vitamin K

4: Vitamin B1

106-: All of the following enzymes are regulated by calcium or calmodulin, except

1: Adenylate cyclase

2: Glycogen synthase

3: Guanylyl cyclase

4: Hexokinase

107-: Use of Zinc in diarrhoea is because it :

1: Reduces the risk, duration and severity of diarrheal episodes

2: Enhances immune response

3: Regulates intestinal transpo & absorption of water and electrolytes

4: All

108-: Test to diagnose thiamine deficiency -

1: RBC transketolase

2: FIGLU excretion

3: Methyl-malunic acid in urine

4: Histidine load test

109-: Lipid soluble plasma membrane associated antioxidant -

1: Ubiquitin

2: Vitamin E

3: Vitamin C

4: Glutathione

110-: During the formation of hydroxyproline and hydroxylysine, the essential factors required is/are

1: Pyridxal phosphate

2: Ascorbic acid

3: Thiamine pyrophosphate

4: Methylcobalamine

111-: All of the following proteins are involved in the metabolism of iron, EXCEPT

1: Transthyretin

2: Ceruloplasmin

3: Ferritin

4: Hepcidin

112-: Not obtained from plant source -

1: Cobalamine

2: Riboflavin

3: Thiamine

4: VitaminA

113-: Thiamine deficiency causes decreased energy production because

1: It is required for the process of transamination

2: It is co-fact or for oxidative reduction

3: It is co-enzyme for transketolase in pentose phosphate pathway

4: It is co-enzyme for pyruvate dehydrogenase and a- ketoglutarate dehydrogenase in Tricarboxylic acid pathway

114-: Richest source of Vitamin-A -

1: Halibut liver oil

2: Carrot

3: Butter

4: Margarine

115-: Most potent form of vitamin D is:

1: 1, 25- dihydroxy cholecalciferol

2: 7-dihydro cholecalciferol

3: 25-hydroxy cholecalciferol

4: Ergocalciferol (Vit. D2)

116-: Copper containing enzyme is:

1: Dopamine hydroxylase

2: Dopamine decarboxylase

3: Dopamine carboxylase

4: Tyrosine hydroxylase

117-: Which of the following form of Vitamin A has maximum effects on DNA?

1: Isoretinal

2: Isoretinoic acid

3: Retinaldehyde

4: Retinol

118-: PLP is the coenzyme form of which vitamin -

1: B1

2: B3

3: B6

4: BI2

119-: 1st product of tryptophan catabolism is

1: kynurenine

2: Bradykinin

3: PAF

4: Xantheurenate

120-: Vitamin K is involved in post-translation modification of

1: Glutamate

2: Aspaate

3: Lysine

4: Proline

121-: Endogenous production of Niacin is from

1: Tyrosine

2: Threonine

3: Tryptophan

4: Alanine

122-: Vitamin E is -

1: Anticoagulant

2: Coagulant

3: Antioxidant

4: Antiinflammatory

123-: Down-regulation is

1: Increased destruction of a hormone

2: Feed back inhibition of hormone secretion

3: Decreased concentration of a hormone in blood

4: Decrease in number of receptors for a hormone

124-: Pellagra is caused by deficiency of which vitamin-

1: B2

2: B3

3: B1

4: Folic acid

125-: Which vitamin is required for carboxylation of clotting factors? rpt Q33

1: Vitamin A

2: Vitamin D

3: Vitamin E

4: Vitamin K

126-: In Non competitive inhibition of enzyme:

1: Decreased Km, increase Vmax

2: Increase Km, Increase Vmax

3: Normal Km, decrease Vmax

4: Normal Km, increase Vmax

127-: All are true about vitamin E except

1: Act as antioxidant

2: Prevent lipd peroxidation of cell membrane

3: Water soluble vitamin

4: Chemically tocopheral

128-: Vitamin deficiency associated with increase xanthurenic acid excretion in urine?

1: Thiamine

2: Pyridoxine

3: Ascorobic acid

4: Niacin

129-: Menadione is an analogue of

1: Vitamin C

2: Vitamin A

3: Vitamin D

4: Vitamin K

130-: Hydroxylation of proline in collagen requires which of the following:

1: Vitamin C

2: Fe2++

3: a-ketoglutarate

4: All of the above

131-: Vitamin K dependent clotting factors are:

1: Factor III & XI

2: Factor IX & X

3: Factor V & VIII

4: Factor XI & XIII

132-: Blood form of folic acid is

1: Folinic acid

2: Petroglutamate

3: Methyl THF

4: None

133-: Sebborhoic Dermatitis is produced by deficiency of:

1: Vitamin C

2: Vitamin B1

3: Vitamin B2

4: Vitamin A

134-: Which of the following minerals is a major component of biological membranes?

1: Potassium

2: Sodium

3: Calcium

4: Phosphorus

135-: TRUE about vitamin K is

1: It is required for synthesis of factor VIII

2: Long term use of antimicrobials can cause deficiency of vitamin K

3: It is a water soluble vitamin

4: DVT is associated with vitamin K deficiency

136-: What is function of Intrinsic Factor - (NEET/DNB

1: Increases cobalamin absorption Pattern)

2: Increases folate absorption

3: Converts prothrombin to thrombin

4: Converts fibrinogen to fibrin

137-: Which of the following vitamin is required for the synthesis of blood clotting factors?

1: Vitamin K

2: Vitamin C

3: Riboflavin

4: Cobalamin

138-: Active form of folic acid

1: Dihydrofolate

2: Folinic acid

3: Tetrahydrofolate

4: Methylated folic acid

139-: Zn deficiency causes

1: Acrodermatits

2: Scaly dermatiis

3: Follicular keratosis

4: Skeletal fluorosis

140-: Which vitamin deficiency causes methylmalonic aciduria?

1: Vitamin B1

2: Vitamin B12

3: Vitamin B6

4: Vitamin B5

141-: Principle function of cyanocobalamine is

1: Post translational carboxylation of protein

2: Acts as coenzymes for methionine synthase and L methyl melonyl CoA synthase

3: A coenzyme for one carbone transfer in nucleic acid metabolism

4: A cofactor for decarboxylase of ketoacid

142-: Which vitamin dificiency causes glossitis and cheilosis -

1: Thiamin

2: Riboflavin

3: Folic acid

4: Vitamin A

143-: Absence of which of the following enzyme in humans is responsible for the inability to synthesize ascorbic acid?

1: L-Glucuronic acid oxidase

2: L-Gulonic acid reductase

3: L-Gulonolactone oxidase

4: L-Gulonolactone reductase

144-: Biochemical test in thiamine deficiency is:

1: FIGLU test

2: Histidine test

3: Erythrocyte transketolase test

4: Ferric chloride test

145-: Keshan's disease due to deficiency of:

1: Selenium

2: Iron

3: Copper

4: Zinc

146-: Vitamin acting on intranuclear receptors-

1: Vitamin K

2: Vitamin D

3: Vitamin B1

4: Vitamin E

147-: Which of the vitamin deficiency lead to lactic acidosis?

1: Riboflavin

2: Thiamin

3: Niacin

4: Panthotheic acid

148-: Cysteine is considered a non-essential amino acid only in the presence of dietary

1: Methionine

2: Serine

3: Folate

4: Phenylalanine

149-: 1-alpha hydroxylation in vitamin d metabolism takes place in

1: Skin

2: Liver

3: Kidney

4: Blood

150-: Riboflavin is a constituent of

1: FMN

2: NAD

3: PLP

4: THF

151-: The role of vitamin K in epoxide cycle is

1: Carboxylation of glucatamate

2: Dehydrogenation of glucatamate

3: Carboxylation of glutamate

4: Dehydrogenation of aspaate

152-: Tryptophan load test helps in the evaluation of deficiency of the Vitamin

1: Folic acid

2: Niacinamide

3: Pyridoxine

4: Cyanocobolamine

153-: Hypervitaminosis E leads to:

1: Hypercalcemia

2: Raised intracranial tension

3: Increased bleeding time

4: Psychosis

154-: Which of the following vitamins serves as a cofactor in carboxylation reactions?

1: Thiamine

2: Riboflavin

3: Biotin

4: Pantothenic acid

155-: Vitamin which is excreted in urine is

1: Vitamin A

2: Vitamin C

3: Vitamin D

4: Vitamin K

156-: Synthesis of type I collagen requires which vitamin?

1: Vitamin A

2: Vitamin C

3: Vitamin D

4: Vitamin K

157-: The main function of Vitamin C in the body is

1: Coenzyme for energy metabolism

2: Regulation of lipid synthesis

3: Involvement as antioxidant

4: Inhibition of cell growth

158-: Which vitamin is required for hydroxylation of proline?

1: A

2: B

3: C

4: D

159-: Which of the following lipid soluble vitamin acts as an antioxidant?

1: Vitamin D

2: Vitamin E

3: Vitamin K

4: Vitamin C

160-: Wernicke's encephalopathy is caused by deficiency of

1: B1

2: B2

3: B6

4: B12

161-: Vitamin B6 deficiency cause increased excretion of

1: Methylmalonyl CoA

2: Xanthurenic acid

3: Branched chain keto acids

4: Ketore Bodies

162-: Coenzyme A formed from which vitamin -

1: C

2: B4

3: Nicotinic acid

4: Pentothenic acid

163-: Rate limiting step in vitamin D synthesis is?

1: 25 cholecalciferol

2: 1, 25-dihydroxycholecalciferol

3: 24, 25- dihydroxycholecalciferol

4: 7-dehydrocholesterol

164-: Menadione is analog of

1: Vitamin A

2: Vitamin D

3: Vitamin K

4: Vitamin C

165-: Vitamin required for collagen synthesis -

1: Vitamin A

2: Vitamin C

3: Thiamine

4: Folic acid

166-: Inhibition of which of the following vitamin is caused by Isoniazid?

1: Riboflavin

2: Pyridoxine

3: Thiamine

4: Folate

167-: Which of the following enzyme dysfunction leads to lactic acidosis in thiamine deficiency?

1: Pyruvate carboxylase

2: Phosphofructokinase

3: Phosphoenol pyruvate carboxykinase

4: Pyruvate dehydrogenase

168-: Both Vitamin K and C are involved in

1: The synthesis of clotting factors

2: Post translational modifications

3: Antioxidant mechanisms

4: The microsomal hydroxylation reactions

169-: Decarboxylation reactions require

1: Riboflavin

2: Thiamine

3: Niacin

4: Biotin

170-: Which of the following vitamin deficiency causes Wernicke Korsakoff syndrome?

1: Thiamin

2: Riboflavin

3: Niacin

4: Cobalamin

171-: A deficiency of substance Intrinsic factor can result in an anemia. Choose the type of anemia that would occur if the substance were deficient.

1: Megaloblastic anemia

2: Hypochromic, microcytic anemia

3: Hemolytic anemia

4: Sickle cell anemia

172-: Thiamine deficiency is known to occur in all of the following except

1: Food faddist

2: Homocystinemia

3: Chronic alcoholic

4: Chronic hea failure

173-: Not obtained from plant source

1: Cobalamine

2: Riboflavin

3: Thiamine

4: Vitamin A

174-: Pyridoxine helps in generation of which coenzyme?

1: FAD

2: ATP

3: NAD

4: None

175-: Which of the following combinations of biologically active molecules does vitamin A consist of?

1: Retinol, retinal and retinoic acid

2: Retinol, retinal and tetrahydrofolate

3: Retinol, Iconjugase and retinoic acid

4: PABA, retinal and retinaldehyde

176-: Menkes Kinky hair syndrome is characterized by congenital deficiency of

1: Serum ceruloplasmin

2: Serum copper

3: Ferochelatase

4: Copper binding ATPase

177-: Which of the following vitamins is used to increase the HDL levels?

1: Folic acid

2: Nicotinic acid

3: Thiamine

4: Pyridoxine

178-: How many doses of vitamin A are required to treat deficiency -

1: 1

2: 2

3: 3

4: 4

179-: All the following reactions are involved in generation of reactive oxygen species within neutrophils for killing intracellular bacteria except

1: Glutathione peroxidase

2: Superoxide dismutase reaction

3: Fenton's reaction

4: NADPH oxidase

180-: Vitamin neede for acetyl CoA carboxylase is

1: Thiamine

2: Riboflavin

3: Nicotin

4: Biotin

181-: Vitamin K is required for rpt Q33

1: Hydroxylation

2: Chelation

3: Transamination

4: Carboxylation

182-: Which is the vitamin deficiency disorder, in people who take the given cereals as their staple diet?

1: Scurvy

2: Beriberi

3: Pellagra

4: Pyridoxine deficiency

183-: Collagen synthesis requires which vitamin -

1: Vitamin B1

2: Vitamin D

3: Vitamin C

4: Vitamin E

184-: Vitamin A is stored in

1: Retina

2: Liver

3: Bone

4: Kidney

185-: A baby is hypotonic and shows that pyruvate cannot form Acetyl CoA in fibroblasts. Also lactic acidosis is found. Administration of which of the following can reve this situation:

1: Biotin

2: Pyridoxal phosphate

3: Thiamine

4: Pyruvate

186-: Excess dietary intake of carbohydrates increases the RDA level of:

1: Thiamine

2: Vit E

3: Vit C

4: Pantothenate

187-: Fe absorption increases by which vitamin?

1: Vitamin A

2: Vitamin C

3: Thiamine

4: Riboflavin

188-: Vitamin essential for transamination is:

1: B1

2: B2

3: B6

4: B12

189-: The only water-soluble vitamin stored in the body

1: B1

2: B2

3: B6

4: B12

190-: Which of the following is not required for healing -

1: Vitamin C

2: Copper

3: Methionine

4: Sodium

191-: Major form of folic acid to transfer one carbon is

1: Methylene THF

2: Formyl THF

3: Methyl THF

4: All

192-: Vitamin K dependent clotting factors are all except -

1: Factor III

2: Factor VII

3: Factor IX

4: Factor X

193-: All of the following statements regarding niacin indicated flushing and pruritus are true except

1: Occurs due to release of prostaglandins by niacin

2: Move likely to occur if taken with ethanol containing beverages

3: Warrants stoppage of niacin immediately

4: Aspirin alletes flushing in most patients

194-: Which of the following vitamin deficiency causes pellagra?

1: Thiamine

2: Ascorbic acid

3: Nicotinic acid

4: Cyanocobalamine

195-: The form of THF used in treatment is :

1: N5 formyl THF

2: N5 methyl THF

3: N10 formyl THF

4: N5 formimino THF

196-: False statement about folic acid?

1: It is present in all the green leafy vegetables

2: It is proven to decrease the occurrence of neural tube defects when taken prenatally

3: Wheat flour in India is foified with folate as in USA

4: Active form of folic acid is tetrahydrofolate

197-: Pellagra is caused by deficiency of:

1: Thiamine

2: Niacin

3: Biotin

4: Ascorbic acid

198-: Co factor of glutathione peroxidase -

1: Selenium

2: Magnesium

3: Manganese

4: Zinc

199-: The hanup disease causes the deficiency of

1: Thiamin

2: Riboflavin

3: Niacin

4: Biotin

200-: Vitamin A is stored in:

1: Kupfer cells

2: Hepatocytes

3: Ito cells

4: Endothelial cells of liver

201-: Thiamine pyrophosphate is coenzyme required for all except rpt Q72

1: a-Ketoglutarate - Succinyl COA

2: Transketolase

3: Pyruvate - Lactate

4: transaminase

202-: The only fat-soluble vitamin that has coenzyme function

1: A

2: D

3: E

4: K

203-: Pyridoxine in required as co-factor in all, except

1: Transamination

2: Transketolation

3: Glycogen phosphonylase

4: Decarboxylation

204-: Pellagra symptoms are aggravated if diet contains?

1: High amount of leucine

2: High amount of lysine

3: Low amount of leucine

4: Low amount of lysine

205-: Which aminoacid does not take pa in one carbon transfer reactions?

1: Alanine

2: Histidine

3: Glycine

4: Serine

206-: Richest source of Vitamin D is

1: Milk

2: Fish liver oils

3: Sunlight

4: Carrots

207-: Menadione is analog of?

1: Vitamin K

2: Vitamin A

3: Vitamin D

4: Vitamin C

208-: Which coenzyme is responsible for carboxylation reaction?

1: Biotin

2: FAD

3: NADH

4: Thiamine pyrophosphate

209-: Collagen synthesis requires which of the following vitamin?

1: Vitamin A

2: Vitamin D

3: Vitamin E

4: Vitamin C

210-: According to prevalence criteria for determining xerophthalmia problems given by WHO, following are true for an endemic area:

1: Bitot spot 5% poluation of under 6 yrs

2: Conjuctival xerosis 1%

3: Conjuctival ulcers 0.05%

4: Night blindness 1%

211-: Pantothenic acid is coenzyme of which of the following reaction (s)?

1: Dehydrogenation

2: Oxidation

3: Decarboxylation

4: Acetylation

212-: Which of the followingg is true about Vitamin K:

1: Vitamin K is needed for action of clotting factor VIII

2: Vitamin K is required for bone health

3: Vitamin K deficiency leads to DVT

4: Vitamin K is a water soluble Vitamin

213-: The mineral having action like vitamin E

1: Calcium

2: Iron

3: Selenium

4: Magnesium

214-: Homocystinuria is caused by deficiency of

1: Riboflavin

2: Biotin

3: Pyridoxine

4: Thiamine

215-: Lipid-engorged macrophages are killed by

1: Unesterified lipoprotein

2: Esterified lipoprotein

3: Unesterified cholesterol

4: Esterified cholesterol

216-: Which of the following statement about thiamine is true?

1: It is a co-enzyme of lactate dehydrogenase

2: Its deficiency is associated with scurvy

3: Its co-enzyme function is done by thiamine monophosphate

4: It is co-enzyme for pyruvate dehydrogenase and a-ketoglutarate dehydrogenase

217-: Gamma - Carboxylation of which of the following requires vitamin K?

1: Glutamine

2: Glutamic Acid

3: Glycine

4: Aspaate

218-: A 55-year old man who was a chronic alcoholic presented with confusion, ataxia, and diplopia. What is the treatment protocol?

1: Thiamine infusion alone

2: thiamine injection followed by glucose infusion

3: Glucose infusion alone

4: Glucose infusion followed thiamine injection

219-: Which of the following has antioxidant properiy-

1: Selenium

2: Copper

3: Zinc

4: All

220-: Which of the following is not a form of vitamin D?

1: Cholecalceferol

2: Calcifediol

3: Ergosterol

4: Cacitriol

221-: Neurotoxicity is seen with excess of -

1: VitaminB6

2: Vitamin B12

3: Vitamin B2

4: VitaminC

222-: Deficiency of which vitamin leads to Wernicke's encephalopathy?

1: Riboflavin

2: Pyridoxine

3: Thiamine

4: Biotin

223-: A chronic alcoholic have low energy production because of Thiamine deficiency as it is:

1: Acting as a cofactor for alpha ketoglutarate dehydrogenase and pyruvate dehydrogenase

2: Acting as cofactor for transketolase in pentose phosphate pathway

3: Interferes with energy production from amino acids

4: Act as cofactor for oxidation reduction

224-: Which dietary deficiency of a vitamin can cause Scurvy.

1: Vitamin C

2: Niacin

3: Vitamin D

4: Biotin

225-: All the following have antioxidant action except:

1: Vitamin A

2: Vitamin E

3: Selenium

4: Vitamin D

226-: All are antioxidants except

1: Vit A

2: Vit C

3: Vit D

4: Vit E

227-: Which of the following vitamin is metabolically produced by the body?

1: Biotin

2: Vitamin K

3: Niacin

4: Pyridoxine

228-: Nutrient which is lost maximum in polished rice-

1: Proteins

2: Thiamine

3: Ascorbic acid

4: Calcitriol

229-: All the following biochemical roles of the Ascorbic acid EXCEPT

1: Role of coenzyme in hydroxylation of proline and lysine

2: Deamination of the hydroxyl group containing amino acids

3: Steroid biosynthesis

4: Bile acid synthesis

230-: Wernicke's encephalopathy is due to the deficiency of:

1: Niacin

2: Cyanocobalamine

3: Pantothenic acid

4: Thiamine

231-: Diagnosis of vitamin B1 deficiency is made bv -

1: Thiamine level

2: Transketolase activity

3: Carboxylase activity

4: Transaminase activity

232-: Major functions of Vitamin E in the body

1: Regulation of energy metabolism

2: Carboxylation reaction

3: Blood clotting

4: Protection of biological membrane from free radical damage

233-: Which of the following vitamins can act without phosphorylation?

1: Pyridoxine

2: Lipoamide

3: Niacin

4: Thiamine

234-: vitamin B12 and intrinsic factor binding take place in which pa of intestine?

1: Stomach

2: Duodenum

3: Ileum

4: Jejunem

235-: The function of vitamin K largely depends on which mineral

1: Selenium

2: Calcium

3: Iron

4: Magnesium

236-: Manifestations of Vitamin-E deficiency does not include

1: Hemolysis

2: Testicular atrophy

3: Neurological Involvement

4: Thrombocytopenia

237-: Which vitamin deficiency cause glossitis and cheilosis?

1: Thiamine

2: Riboflavin

3: Folic acid

4: Vitamin A

238-: Oxidation of lactate to pyruvate requires which vitamin

1: Riboflavin

2: Niacin

3: Folic acid

4: Biotin

239-: Water soluble form of Vitamin K

1: Phylloquinone

2: Menaquinone

3: Menadione

4: None

240-: HDN is seen due to deficiency of vitamin

1: A

2: C

3: K

4: E

241-: Neurotoxicity is seen with excess of

1: Vitamin B6

2: Vitamin B12

3: Vitamin B2

4: Vitamin C

242-: Which of the following is a constituent of vitamin B12?

1: Iodine

2: Zinc

3: Cobalt

4: Iron

243-: Vitamin B12 and folic acid supplementation in megaloblastic anemia leads to the improvement of anemia due to

1: Increased DNA synthesis in bone marrow

2: Increased hemoglobin production

3: Erythroid hyperplasia

4: Increased iron absorption

244-: Which of the following vitamin is most potent antioxidant?

1: Vitamin D

2: Vitamin E

3: Vitamin K

4: Vitamin B

245-: Which of the following vitamins deficiency occurs in exclusively in carnivores

1: Thiamine

2: Niacin

3: Cobalamine

4: Vitamin C

246-: Antioxidant property is seen in -

1: Chromium

2: Selenium

3: Magnesium

4: Iron

247-: A 45yr diabetic patient is found to be associated with Hyperiglyceridemia and elevated LDL.Which of the following vitamin can be indicated in this patients?

1: Thiamine

2: Riboflavin

3: Niacin

4: Pantothenic acid

248-: IP3 facilitates which ion entry into cytoplasm?

1: Na+

2: K+

3: Ca++

4: Mg++

249-: Following are antioxidants except

1: Carotenoids

2: Benzene

3: Vit E

4: Selenium

250-: Lactate dehydrogenase enzyme requires which metal

1: Selenium

2: Copper

3: Magnesium

4: Zinc

251-: Beta alanine is formed by

1: Biotin

2: Pyridoxal phosphate

3: Pantothenic acid

4: Folic acid

252-: Peroxidases belong to which enzyme group?

1: Oxidase-Reductase

2: Lipase

3: Hydrolase

4: Transferase

253-: Isotretinoin is:

1: All trans retinoic acid

2: All cis retinoic acid

3: 13 trans retinoic acid

4: 13 cis retinoic acid

254-: Thiamine pyrophosphate is coenzyme required for all except

1: Branched - chain amino acid dehydrogenase complex

2: 2 - hydroxy phytanoyl - CoA lyase

3: Transketolase

4: transamination

255-: Which vitamin deficiency causes excretion of xanthurenic acid?

1: Folic acid

2: Pyridoxine

3: Niacin

4: Vitamin B12

256-: Increased intake of PUFA causes increased requirement of the following vitamin

1: Fiboflavin

2: Tocopherol

3: Vitamin A

4: Vitamin D

257-: Carboxylation is governed by

1: Biotin

2: Niacin

3: Thiamine

4: Pyridoxine

258-: Which of the following vitamins does not participate in oxidative decarboxylation of pyruvate to acetyl CoA -

1: Thiamine

2: Niacine

3: Riboflavin

4: Biotin

259-: Vitamin k epoxide cycle is seen in

1: Lungs

2: Liver

3: Intestine

4: Spleen

260-: B12 deficiency causes -

1: Demyelination

2: Dermatitis

3: Burning foot syndrome

4: Beriberi

261-: Which vitamin in large doses is teratogenic?

1: Vitamin A

2: Vitamin D

3: Vitamin E

4: Vitamin K

262-: Selenium deficiency causes:

1: Menke's disease

2: Wilson's disease

3: Keshan disease

4: Kashinbeck disease

263-: Post-translational modification of hydroxylases is mediated by

1: Vitamin K

2: Vitamin E

3: Vitamin C

4: Vitamin D

264-: In case of cyanide poisoning, antidote of amyl nitrate is given. This is an example of:

1: Receptor antagonism

2: Chemical antagonism

3: Physical antagonism

4: Physiological antagonism

265-: Vitamin B12 acts as co-enzyme to which one of the following enzymes?

1: Isocitrate dehydrogenase

2: Homocysteine methyl transferase

3: Glycogen synthase

4: G-6-P dehydrogenase

266-: Vitamin A intoxication causes injury to

1: Lysosomes

2: Mitochondria

3: Endoplasmic reticulum

4: Microtubules

267-: Erythrocyte glutathione reductase deficiency is seen in deficiency of:

1: Riboflavin

2: Folic acid

3: VitaminC

4: Vitamin E

268-: Why does Vit B6 deficiency lead to anemia?

1: ALA synthase is affected

2: Iron absorption is affected

3: RBC life span is reduced

4: B6 deficiency leads to bleeding

269-: All of the following vitamins are anti-oxidants EXCEPT:

1: Beta- carotene

2: Ascorbic acid

3: Vitamin E

4: Vitamin K

270-: Which vitamin deficiency causes pellagra?

1: Vitamin B1

2: Vitamin B2

3: Vitamin B3

4: Vitamin B4

271-: Which of the following mineral has antioxidant property-

1: Calcium

2: Magnesium

3: Zinc

4: Iron

272-: Which of the following vitamin is not an antioxidant

1: Vitamin A

2: Vitamin B

3: Vitamin C

4: Vitamin E

273-: Which of the following deficiency can cause generalized oedema:

1: Vitamin B2

2: Vitamin B6

3: Vitamin B12

4: Vitamin B1

274-: Which of the following Vitamin is an antioxidant-

1: Vitamin D

2: Vitamin E

3: Vitamin K

4: Vitamin B]

275-: All are true about Vitamin B12, except

1: Active form is methylcobalamine

2: Requires for conversion of homocysteine to methionine

3: Requires in metabolism of methylmalonyl CoA

4: Requires for conversion of pyruvate to lactate

276-: Gamma carboxylation is done by which vitamin-

1: Vitamin K

2: Vitamin D

3: Vitamin C

4: Vitamin A

277-: Metabolic bone disease is caused by excess intake of which vitamin?

1: A

2: B

3: C

4: D

278-: Vitamin synthesized from tryptophan -

1: Thiamine (Vitamin B1)

2: Riboflavin (Vitamin B2)

3: Niacin (Vitamin B3)

4: Pyridoxin (Vitamin B6)

279-: Role of Vitamin K for activation in dotting cycle-

1: Carboxylation

2: Hydroxylation

3: Transamination

4: Deamination

280-: Which of the following is a Water-soluble Vitamin?

1: Folic acid

2: Vitamin A

3: Vitamin K

4: Linolenic acid

281-: Hypervitaminosis A causes:

1: Alopecia

2: Benign intracranial hypeension (Pseudo tumour cerebri)

3: Liver damage

4: All

282-: Diagnosis of folic acid deficiency is done by all except

1: FIGLU estimation

2: Peripheral blood smears

3: AICAR estimation

4: transketolase activity

283-: The function of vitamin K largely depends on which mineral -

1: Selenium

2: Calcium

3: Iron

4: Magnesium

284-: Casal's paint necklace is seen in?

1: Lichen planus

2: Pellagra

3: Pernicious anemia

4: SLE

285-: Which one among the following is not an antioxidant?

1: Zinc

2: Selenium

3: Copper

4: Iron

286-: Scurvy is d ue to deficiency of -

1: Vitamin C

2: Vitamin A

3: Vitamin K

4: Vitamin E

287-: All are true about vitamin E except -

1: Act as antioxidant

2: Prevent lipid peroxidation of cell membrane

3: Water soluble vitamin

4: Chemically tocopheral

288-: A 38 year old female patient was on Isoniazid therapy for tuberculosis. She developed rashes on the exposed pas of her body. She has disoriented memory. Family members gives history of diarrhea also. What is the diagnosis:

1: Tuberculosis skin lesions

2: Niacin deficiency

3: Isoniazid neuropathy

4: Some other drug has caused this

289-: Which of the following tocopherol is the most active form of vitamin E?

1: Alpha

2: Beta

3: Gamma

4: Delta

290-: Vitamin which is not required in the TCA cycle?

1: Pyridoxine

2: Niacin

3: Pantotheic acid

4: Riboflavin

291-: Among the following, which is the most effective antioxidant:

1: Vitamin A

2: Vitamin C

3: Vitamin E

4: Vitamin K

292-: A deficiency of substance iron can result in an anemia. Choose the type of anemia that would occur if the substance were deficient.

1: Megaloblastic anemia

2: Hypochromic, microcytic anemia

3: Hemolytic anemia

4: Sickle cell anemia

293-: Cobalt is present in which vitamin?

1: Vitamin B1

2: Vitamin B3

3: Vitamin B5

4: Vitamin B12

294-: 25 hydroxylation of vitamin D occurs

1: Skin

2: Liver

3: Kidney

4: Spleen

295-: Which of the following reaction is affected in patients of scurvy?

1: Carboxylation

2: Acetylation

3: Hydroxylation

4: Transamination

296-: RDA of thiamine per 1000 kcal energy per day is

1: 0.5 mg

2: 0.6 mg

3: 0.7 mg

4: 0.8 mg

297-: Deficiency of which vitamin during pregnancy predisposes to meningomyelocele?

1: Folic acid

2: Biotin

3: Pyridoxine

4: Thiamine

298-: Thiamine deficiency is best detected by estimating the activity of -

1: Transketolase

2: Transaldolase

3: Hexokinase

4: Pyruvate carboxylase

299-: Which of the following is rate limiting step?

1: 25 hydroxylation of vitamin D

2: 24 hydroxylation of vitamin D

3: 1 hydroxylation of vitamin D

4: None

300-: Menkes disease is due to deficiency of:

1: Selenium

2: Copper

3: Chromium

4: Manganese

301-: Vitamin C is required for -

1: Posttranslational modification

2: Synthesis of epinephrine

3: Tyrosine metabolism

4: All of the above

302-: Folinic acid is:

1: 5-formyl tetrahydrofolate

2: 5-formyl dihydrofolate

3: N5, N10-methylene tetrahydrofolate

4: N5, N10-methylene dihydrofolate

303-: All of the following are causes of hypocalcemia, EXCEPT

1: Acute pancreatitis

2: Chronic renal failure

3: Hypoparathyroidism

4: Vitamin D intoxication

304-: Thiamine deficiency is known to occur in all of the following except :

1: Food Faddist

2: Homocysteinemia

3: Chronic alcoholic

4: Chronic hea failure patient on diuretics

305-: Which of the following is involved in 1 carbon metabolism?

1: Folic acid

2: Thiamine

3: Pyridoxine

4: Vitamin B12

306-: Wernicke encephalopathy is due to acute dietary deficiency of:

1: Folic acid

2: Nicotinic acid

3: Thiamine

4: Pyridoxine

307-: Which enzyme is used to convert phenylalanine to tyrosine:

1: Tyrosine synthase

2: Tyrosine hydroxylase

3: Phenylalanine hydroxylase

4: Phenyl ethanolamine methyltransferase

308-: Which of the following vitamins contain sulfur in its structure?

1: Thiamine

2: Riboflavin

3: Folic acid

4: Niacin

309-: Fat soluble vitamin with antioxidant effect -

1: Vitamin A

2: Vitamin D

3: Vitamin E

4: Vitamin K

310-: The normal pH of the human blood is which one of the following:

1: 70-72

2: 7.25-7.35

3: 7.36-7.44

4: 7.50-7.55

311-: All are free radicals except

1: Superoxide

2: Hydrogen peroxide

3: peroxyl

4: Hydroperoxyl

312-: Which of the following vitamin enhances absorption of iron?

1: Vitamin K

2: Vitamin C

3: Vitamin B1

4: Folic acid

313-: False statement regarding Schilling test is:

1: Unlabelled B12 is given IM

2: Labelled B12 given orally

3: Vit B12 excreted in urine

4: Abnormal test rules out primary intestinal malabsorption

314-: Which of the following is a provitamin -

1: Ascorbicacid

2: Vitamin-E

3: b-carotene

4: Vitamin-K

315-: Most important vitamin, w hich promotes wound healing -

1: Vitamin C

2: Vitamin D

3: Vitamin A

4: Niacin

316-: Vitamin H is also known as

1: Cobalamin

2: Biotin

3: Pyridoxine

4: Folate

317-: Vitamin with antioxidant property:

1: Vitamin E

2: Vitamin D

3: Vitamin B7

4: Vitamin B9

318-: Vitamin E is

1: Anticoagulant

2: Coagulant

3: Antioxidant

4: Antiinflammatory

319-: Vitamin which helps in iron absorption:

1: Vitamin A

2: Vitamin B

3: Vitamin C

4: Vitamin E

320-: Pellagra is caused by -

1: Hartnup's disease

2: Cystinuria

3: Cystinosis

4: Type I Tyrosinemia

321-: Menke disease is associated with

1: Copper

2: Selenium

3: Zinc

4: Iron

322-: Vitamin E prevents rancidity by virtue of its---------property:

1: Antioxidant

2: Oxidant

3: Sulfuration

4: Hydrogenation

323-: Biotin is used in the treatment of:

1: Multiple carboxylase deficiency

2: Keto acid dehydrogenase deficiency

3: Transketolase deficiency

4: Multiple dehydrogenase deficiency

324-: Of the following which is absent in eggs:

1: Vitamin B12

2: Vitamin C

3: Vitamin A

4: Vitamin B2

325-: Conversion of glycine to serine requires

1: Folic acid

2: Thiamine

3: Vit. C

4: Fe2+

326-: Pellagra is caused by deficiency of which vitamin?

1: B2

2: B3

3: B1

4: Folic acid

327-: All the vitamins are carried by proteins than Not-co transport EXCEPT

1: Niacin

2: Riboflavin

3: Thiamine

4: Cyanocobalamine

328-: Deficiency of which of the following vitamins is associated with progressive keratinization of the cornea?

1: Vitamin A

2: Vitamin C

3: Niacin

4: Pyridoxine

329-: Which is not Pyridoxine-dependent?

1: Oxaluria

2: Homocystinurea

3: Maple syrup urine disease

4: Xanthenuric aciduria

330-: Following Vitamin Prevents Peroxidation of lipids of cellular level

1: Vitamin A

2: Vitamin C

3: Vitamin E

4: Vitamin K

331-: Ehlers-Darlos syndrome characterized by hypermobile joints and skin abnormalities is due to:

1: Abnormality in gene for procollagen

2: Deficiency of lysyl oxidase

3: Deficiency of prolyl hydroxylase

4: Deficiency of lysyl hydroxylase

332-: All are true about Vitamin B|2, except -

1: Active form is methylcobalamine

2: Requires for conversion of homocysteine to methionine

3: Requires in metabolism of methylmalonyl Co A

4: Requires for conversion of pyruvate to lactate

333-: Select the TRUE statement about vitamin B12:

1: Does not act as cofactor

2: Involved in the transfer of amino groups

3: Requires a specific glycoprotein for its absorption

4: Dietary requirement is met by intake of plant products

334-: Active form of vitamin D is

1: 25 - OH - cholecalciferol

2: 1- 25 - dihydroxy cholecalciferol

3: Ergocalciferol

4: Cholecalciferol

335-: A patient with biliary atresia is more prone to the deficiency of:

1: Vit B12

2: Vit K

3: Vit C

4: Niacin

336-: Transketolase activity is seen with which vitamin

1: Vit B1

2: Vit B2

3: Vit B3

4: Vit B4

337-: Which of the following retinoids has major role to play in epithelial differenciation?

1: Retinal

2: Retinol

3: Retinoic acid

4: None of the above

338-: Cofactor involved in metabolism of sulfur containing amino acids:

1: Biotin

2: Vitamin B2

3: Vitamin B1

4: Vitamin B12

339-: What is function of Intrinsic Factor?

1: Increases cobalamin absorption

2: Increases folate absorption

3: Conves prothrombin to thrombin

4: Conve s fibrinogen to fibrin

340-: Vitamin A is stored mainly as retinol esters in

1: Kidney

2: Muscle

3: Liver

4: Retina

341-: Active form of Vitamin -D -

1: 25-hydroxycho!ecalciferol

2: 24,25-dihydroxycholecalciferol

3: 1,25-dihydroxycholecalciferol

4: Cholecalciferol

342-: All of the following vitamins are antioxidants, EXCEPT:

1: Vitamin A

2: Vitamin C

3: Vitamin K

4: Vitamin E

343-: Figlu is a metabolite of:

1: Folic Acid

2: Histidine

3: Alanine

4: Tyrosine

344-: In folic acid deficiency which of the following is excreted in urine

1: Kynurenine

2: Xantheurenic acid

3: FIGLU

4: M ethylmalonate

345-: Vitamin also acting as hormone

1: Vitamin D

2: Vitamin A

3: Vitamin B1

4: Vitamin C

346-: The role of vitamin K in epoxide cycle is -

1: Carboxylation of aspartate

2: Dehydrogenation of glucatamate

3: Carboxylation of glutamate

4: Dehydrogenation of aspartate

347-: Vitamin required for the activity of transaminases is:

1: Folic acid

2: Nicotinic acid

3: Thiamine

4: Pyridoxine

348-: Vitamin required for production of Thrombin is:

1: Vitamin A

2: Vitamin D

3: Vitamin K

4: Vitamin E

349-: Which of the following shows functional assessment of B1 deficiency:

1: RBC Transketolase

2: RBC Glutathione reductase

3: Serum Thiamine levels

4: RBC Glutathione Peroxidase

350-: Major function of Vitamin E in the body -

1: Regulation of energy metabolism

2: Carboxvlation reaction

3: Blood clotting

4: Protection of biological membrane from free radical damage

351-: Which of the following is the major source of Vitamin D

1: Milk

2: Oily fish

3: Egg yolk

4: Sunlight

352-: Which of the following molecules delivers iron to tissues by binding to specific cell surface receptors:

1: Ferritin

2: Ferredoxin

3: Hemosiderin

4: Transferrin

353-: Pellagra symptoms are aggravated if diet contains

1: High amount of leucine

2: High amount of lysine

3: Low amount of leucine

4: Low amount of lysine

354-: Deficiency of which vitamin present classically as 3 'Ds'-

1: Folic acid

2: Pyridoxin

3: Niacin

4: Vitamin B12

355-: The best index for calculation of the nutritional value of protein is which one of the following:

1: Biological Value

2: Net protein utilization

3: Protein digestibility

4: Protein efficiency rates

356-: Deficiency of which of the following vitamins leads to lactic acidosis?

1: Riboflavin

2: Thiamine

3: Niacin

4: Pantothenic acid

357-: A vitamin related to a co-factor in glycine metabolism is

1: Thiamine

2: Biotin

3: Folic acid

4: Pantothenic acid

358-: Which of the following enzymes does not use copper?

1: Prolyl hydroxylase

2: Tyrosinase

3: Ceruloplasmin

4: Superoxide dismutase

359-: Hydroxylation of proline requires -

1: Vitamin B1

2: Vitamin D

3: Vitamin C

4: Vitamin E

360-: Biotin is a coenzyme for:

1: Pyruvate dehydrogenase

2: Pyruvate carboxylase

3: PEP carboxylase

4: Glutamate pyruvate transaminase

361-: Which of the following acts as cofactor after it&;s modification?

1: Vit-C

2: Pantothenic acid

3: Biotin

4: Zinc

362-: Consumption of raw egg may lead to deficiency of

1: Biotin

2: Riboflavin

3: Thiamine

4: Avidin

363-: Vit B1 is a cofactor for

1: Transketolase

2: Transaldolase

3: Aldolase A

4: Aldolase B

364-: Which vitamin is synthesized by intestinal sites?

1: Vit B

2: Vit A

3: Vit D

4: Vit K

365-: Pyridoxine is involved in

1: Carboxylation

2: Trans-sulfuration

3: Oxidation-reduction

4: Transketolation

366-: Which Vitamin is involved in Redox reactions?

1: Pyridoxin

2: Biotin

3: Folic acid

4: Riboflavin

367-: Good sources of vitamin 'C' are all except -

1: Amla

2: Lime

3: Guava

4: Egg

368-: Which of the following does not contain carotene?

1: Potato

2: Tomato

3: Carrot

4: Spinach

369-: Which vitamin deficiency causes glossitis and cheilosis?

1: Thiamin

2: Riboflavin

3: Folic acid

4: Vitamin A

370-: Vitamin given in pregnant women to prevent neural tube defect:

1: Folic acid

2: Vitamin B12

3: Vitamin C

4: Vitamin A

371-: Conversion of Pyruvate to Acetyl CoA does not require

1: Thiamine

2: TPP

3: Pyridoxine

4: FAD

372-: Headache and papilledema are features of toxicity of which vitamin?

1: Vitamin A

2: Vitamin D

3: Vitamin C

4: Vitamin E

373-: Pyridoxin is known as -

1: Vitamin B1

2: Vitamin B2

3: Vitamin B3

4: Vitamin B6

374-: Gastrectomy produces deficiency of which vitamin

1: Vitamin B6

2: Vitamin B12

3: Vitamin B2

4: Vitamin B1

375-: The vitamin synthesized by bacteria in the intestine is:

1: Vitamin K

2: Vitamin B1

3: Vitamin D

4: Vitamin B3

376-: Glossitis and cheilitis seen with which Vit. Deficiency: (PGI Dec 2006)

1: Vit. B2

2: Vit. B12

3: Vit. K

4: Vit. D

377-: Which vitamin in large doses decreases triglyceride and cholesterol?

1: Vitamin B1

2: Nicotinic acid

3: Vitamin B12

4: Riboflavin

378-: In Beri-Beri, which enzyme activity is measured?

1: Transketolase

2: Tranaminase

3: Decarboxylase

4: Deaminase

379-: Which of the following fat-soluble vitamin is anti-oxidant?

1: Vitamin E

2: Vitamin C

3: Vitamin A

4: Vitamin K

380-: Biotin deficiency is characterized by the following except:

1: Muscular pain

2: Anaemia

3: Nausea

4: Dermatitis

381-: Which of the following enzyme activities can be used to help diagnose riboflavin deficiency?

1: RBC transketolase

2: RBC glutathione reductase

3: Branched chain ketoacid dehydrogenase

4: RBC transaminase

382-: Wernicke encephalopathy is due to deficiency of:

1: Thiamine

2: Biotin

3: Niacin

4: Hydroxycobalamin

383-: Which of the soluble vitamin is synthesized in the body?

1: Thiamine

2: Vitamin C

3: Niacin

4: Pyridoxine

384-: In pregnancy, neural tube defect arises in the fetus due to deficiency of which of the following in the mother?

1: Vitamin

2: Folic Acid

3: Vitamin A

4: Vitamin C

385-: VITAMIN WHICH IS NOT SYNTHESIZED BY THE BACTERIAL FLORA IN THE INESTINE IS?

1: vitamin k

2: Biotin

3: Niacin

4: Pantothenic acid

386-: Which is an antioxidant vitamin?

1: Vitamin A

2: Vitamin D

3: Vitamin E

4: Vitamin K

387-: Which of the following is the major circulating form of Vitamin D?

1: 25-(OH) D3

2: 1, 25-(OH)2 D3

3: 24, 25-(OH)2 D3

4: 1, 24-(OH)2 D3

388-: Water soluble vitamin is -

1: Thiamine

2: Retinoic acid

3: Cholecalciferol

4: Tocopherol

389-: G6PD is enzyme of:

1: Mitochondria

2: Cell membrane

3: Golgi organ

4: Endoplasmic reticulum

390-: Carboxylation of clotting factors by vitamin K is required to be biologically active. Which of the following amino acid is carboxylated?

1: Histidine

2: Histamine

3: Glutamate

4: Aspaate

391-: Which vitamin is required for hydroxylation of proline-

1: A

2: B

3: C

4: D

392-: Thiamine is not used in which of the following reactions

1: Lactate to pyruvate

2: Alphaketoglutarate to succinyl CoA

3: Glucose to pentose

4: Oxidative decarboxylation of alpha keto amino acids.

393-: Riboflavin is a constituent of -

1: FMN

2: NAD

3: PLP

4: THF

394-: Vitamin given to pregnant women to prevent neural tube defect:

1: Vitamin A

2: Vitamin C

3: Folic acid

4: Vitamin B12

395-: Investigation of choice in Thiamine deficiency is

1: RBC-Thiamine levels

2: RBC - Transketolase levels

3: RBC - Glutathione reductase levels

4: WBC - Ascorbic acid levels

396-: Which of the following mineral has similar action like vitamin E

1: Calcium

2: Iron

3: Selenium

4: Magnesium

397-: Tryptophan is glucogenic & ketogenic by producing

1: Acetyl CoA & alanine

2: Acetoacetate & fumarate

3: Acetoacetate & arginine

4: Arginine & alanine

398-: White polished rice causes deficiency of -

1: Thiamine

2: Tryptophan

3: Riboflavin

4: Protein

399-: Riboflavin deficiency is assessed by

1: Transketolase

2: Glutathione reductase

3: PDH

4: None

400-: Selenium is essential for the:

1: Glutathione peroxidase

2: Glutathione reductase

3: Glutathione synthetase

4: Glutathione hydroxylase

401-: Vitamin A is stored mainly as retinol esters in -

1: Kidney

2: Muscle

3: Liver

4: Retina

402-: Disease associated with excessive maize diet -

1: Wernicke's encephalopathy

2: Pellagra

3: Beri-Beri

4: Scurvy

403-: Which of the following is not an antioxidant?

1: SOD

2: Vitamin A

3: Gluthione peroxidase

4: Xanthine oxidase

404-: Antioxidant vitamin -

1: Vitamin A

2: Ascorbic acid

3: Vitamin E

4: All of the above

405-: Overdose of vitamin A mainly affects _____

1: Cytosol

2: Mitochondria

3: Lysosome

4: Cell membrance

406-: Niacin deficiency causes

1: Pigmentation

2: Diarrhea

3: Rash

4: Lactic acidosis

407-: Mineral with antioxidant property:

1: Molybdenum

2: Selenium

3: Copper

4: Zinc

408-: Best source of vitamin D -

1: Fish liver

2: Egg yolk

3: Milk

4: Papaya

409-: All of the following vitamins are antioxidants EXCEPT:

1: Beta carotene

2: Vitamin B

3: Vitamin C

4: Vitamin E

410-: Selenium is present in which enzyme -

1: Glutathione reductase

2: Glutathione peroxidase

3: Glutathione deiodinase

4: Thioredoxine peroxidase

411-: Which vitamin deficiency is seen in vegetarians especially -

1: Vitamin B12

2: Vitamin B6

3: Vitamin B3

4: Vitamin B2

412-: An 10 month-old baby is brought to the pediatric clinic with symptoms of diarrhea, hair loss and failure to thrive. On clinical examination, there is inflammation of the skin around the mouth and the perianal region. The mineral deficiency responsible for this disease is a cofactor for all of the following enzymes except?

1: Lactate dehydrogenase

2: Alcohol dehydrogenase

3: Glutathione peroxidase

4: Alkaline phosphatase

413-: Major form of folic acid to transfer one carbon is -

1: Methylene THF

2: Formyl THF

3: Methyl THF

4: All

414-: Which one of the following amino acid residue is carboxylated by Vitamin K?

1: Aspaate

2: Glutamate

3: Tryptophan

4: Tyrosine

415-: True about competitive inhibition with first order kinetics

1: Km increased, Vmax same

2: Vmax increased, Km same

3: Km same, Vmax decrease

4: Km same, Vmax increase

416-: The recommended oral dose of vitamin A in pregnant females is:

1: 50,000 U

2: 1,00,000 U

3: 2,00,000 U

4: 3,00,000 U

417-: Which vitamin is given in type 2B familial hyperlipidemia?

1: Thiamine

2: Riboflavin

3: Nicotinic acid

4: Panthothenic acid

418-: Which water soluble vitamin is synthesized in our body -

1: Niacin

2: Folic acid

3: Cobalamine

4: Pyridoxine

419-: Vitamin required for collagen synthesis

1: Vitamin A

2: Vitamin C

3: Thiamine

4: Folic acid

420-: All are vitamin K dependent clotting factors of hepatic origin except

1: II

2: VII

3: VIII

4: X

421-: A child with alopecia, hyperpigmentation, hypogonadism and rash of genital area and mouth is likely to suffer from:

1: Iron deficiency

2: Zinc deficiency

3: Calcium deficiency

4: Copper deficiency

Answers

Question No	Answer Option	Answer
1	3	Vitamin B12
2	3	Vitamin D
3	1	Vitamin D
4	4	Vitamin B12
5	4	Obstructive jaundice
6	4	Biotin
7	2	Niacin
8	1	Folic acid
9	2	Niacin
10	4	Riboflavin
11	1	Avidin
12	3	Involvement as antioxidant
13	3	Folic acid
14	4	Glutamine
15	2	Halibut liver oil
16	3	Hemopexin
17	2	Vitamin B12
18	3	Thiamin
19	4	Folic acid
20	3	Biotin
21	4	Kidney
22	1	Guava

23	4	Vitamin K
24	2	Vitamin D
25	3	Succinate dehydrogenase
26	1	Vitamin C
27	1	Fumaryl acetoacetate hydrolase
28	1	Pyruvate dehydrogenase
29	3	X-linked
30	3	Niacin
31	3	Menaquinone is the dietary source of vitamin K found in green vegetables.
32	2	Retinal
33	1	Selenium
34	1	vitamin E
35	1	Vitamin K
36	2	Pellegra
37	2	Macrocytic
38	4	One, decreases
39	1	Megaloblastic anemia
40	1	Ileum
41	1	Vitamin A
42	2	Niacin
43	4	Pellagra
44	2	V
45	1	Sunflower seeds
46	2	Retinol

47	3	Methyl-THFA
48	2	Acetylation
49	4	It is co-enzyme for pyruvate dehydrogenase
50	2	Carotenes
51	4	Transketolase
52	3	Folic acid along with Hydroxycobalamin
53	2	Retinal
54	4	Most of the intracellular magnesium is in the muscle
55	4	Vitamin E
56	3	Formation of DNA
57	1	Cretinism
58	4	Niacin
59	2	Pantothenate kinase - associated neurodegeneration
60	3	F1GLU
61	4	Vitamin B12
62	3	Methionine synthase
63	1	Lysine
64	1	L-gulonolactone oxidase
65	3	Glutamate to GABA
66	1	Chromium
67	1	Vitamin A
68	2	Methyl tetrahydrofolate to tetrahydrofolate
69	2	Histidine
70	1	Selenium

71	3	Vitamin D
72	1	Transketolase
73	3	Megaloblastic anemia
74	4	4000
75	1	Cerebellar dysfunction
76	4	Pyruvate dehydrogenase
77	2	Transketolase level in RBC
78	3	Niacin
79	4	Glucose 6 phosphate dehydrogenase
80	2	B3
81	4	Selenium
82	2	Carboxylation
83	2	25 Hydroxy-cholecalciferol
84	1	S-adenosylmethionine
85	4	Hyperostosis
86	2	Folic acid
87	1	Transketolase
88	1	Ribofalvin
89	4	Kidney
90	3	Selenium
91	2	Vitamin K
92	3	Transketolase
93	2	Ceruloplasmin
94	3	Menadione
95	1	Zinc

96	3	Vitamin D
97	2	Transketolase activity
98	1	Iron
99	4	It ours the oxidation of low-density lipoproteins
100	3	Vitamin K
101	4	ALA dehydratase
102	2	Duodenum
103	3	Fatty acid synthesis
104	1	Megaloblastic anemia
105	2	Vitamin E
106	4	Hexokinase
107	4	All
108	1	RBC transketolase
109	2	Vitamin E
110	2	Ascorbic acid
111	1	Transthyretin
112	1	Cobalamine
113	4	It is co-enzyme for pyruvate dehydrogenase and a-ketoglutarate dehydrogenase in Tricarboxylic acid pathway
114	1	Halibut liver oil
115	1	1, 25- dihydroxy cholecalciferol
116	1	Dopamine hydroxylase
117	2	Isoretinoic acid
118	3	B6
119	1	kynurenine

120	1	Glutamate
121	3	Tryptophan
122	3	Antioxidant
123	4	Decrease in number of receptors for a hormone
124	2	B3
125	4	Vitamin K
126	3	Normal Km, decrease Vmax
127	3	Water soluble vitamin
128	2	Pyridoxine
129	4	Vitamin K
130	4	All of the above
131	2	Factor IX & X
132	3	Methyl THF
133	3	Vitamin B2
134	4	Phosphorus
135	2	Long term use of antimicrobials can cause deficiency of vitamin K
136	1	Increases cobalamin absorption Pattern)
137	1	Vitamin K
138	3	Tetrahydrofolate
139	1	Acrodermatits
140	2	Vitamin B12
141	3	A coenzyme for one carbone transfer in nucleic acid metabolism
142	2	Riboflavin
143	3	L-Gulonolactone oxidase

144	3	Erythrocyte transketolase test
145	1	Selenium
146	2	Vitamin D
147	2	Thiamin
148	1	Methionine
149	3	Kidney
150	1	FMN
151	3	Carboxylation of glutamate
152	2	Niacinamide
153	3	Increased bleeding time
154	3	Biotin
155	2	Vitamin C
156	2	Vitamin C
157	3	Involvement as antioxidant
158	3	C
159	2	Vitamin E
160	1	B1
161	2	Xanthurenic acid
162	4	Pentothenic acid
163	2	1, 25-dihydroxycholecalciferol
164	3	Vitamin K
165	2	Vitamin C
166	2	Pyridoxine
167	4	Pyruvate dehydrogenase
168	2	Post translational modifications

169	2	Thiamine
170	1	Thiamin
171	1	Megaloblastic anemia
172	2	Homocystinemia
173	1	Cobalamine
174	3	NAD
175	1	Retinol, retinal and retinoic acid
176	4	Copper binding ATPase
177	2	Nicotinic acid
178	3	3
179	1	Glutathione peroxidase
180	4	Biotin
181	4	Carboxylation
182	3	Pellagra
183	3	Vitamin C
184	2	Liver
185	3	Thiamine
186	1	Thiamine
187	2	Vitamin C
188	3	B6
189	4	B12
190	4	Sodium
191	1	Methylene THF
192	1	Factor III
193	3	Warrants stoppage of niacin immediately

194	3	Nicotinic acid
195	1	N5 formyl THF
196	3	Wheat flour in India is foified with folate as in USA
197	2	Niacin
198	1	Selenium
199	3	Niacin
200	3	Ito cells
201	4	transaminase
202	4	K
203	2	Transketolation
204	1	High amount of leucine
205	1	Alanine
206	2	Fish liver oils
207	1	Vitamin K
208	1	Biotin
209	4	Vitamin C
210	4	Night blindness 1%
211	4	Acetylation
212	2	Vitamin K is required for bone health
213	3	Selenium
214	3	Pyridoxine
215	3	Unesterified cholesterol
216	4	It is co-enzyme for pyruvate dehydrogenase and a-ketoglutarate dehydrogenase
217	2	Glutamic Acid

218	2	thiamine injection followed by glucose infusion
219	4	All
220	3	Ergosterol
221	1	VitaminB6
222	3	Thiamine
223	1	Acting as a cofactor for alpha ketoglutarate dehydrogenase and pyruvate dehydrogenase
224	1	Vitamin C
225	4	Vitamin D
226	3	Vit D
227	3	Niacin
228	2	Thiamine
229	2	Deamination of the hydroxyl group containing amino acids
230	4	Thiamine
231	2	Transketolase activity
232	4	Protection of biological membrane from free radical damage
233	2	Lipoamide
234	2	Duodenum
235	2	Calcium
236	4	Thrombocytopenia
237	2	Riboflavin
238	2	Niacin
239	3	Menadione
240	3	K

241	1	Vitamin B6
242	3	Cobalt
243	1	Increased DNA synthesis in bone marrow
244	2	Vitamin E
245	4	Vitamin C
246	2	Selenium
247	3	Niacin
248	3	Ca++
249	2	Benzene
250	4	Zinc
251	3	Pantothenic acid
252	1	Oxidase-Reductase
253	4	13 cis retinoic acid
254	4	transamination
255	2	Pyridoxine
256	2	Tocopherol
257	1	Biotin
258	4	Biotin
259	2	Liver
260	1	Demyelination
261	1	Vitamin A
262	3	Keshan disease
263	3	Vitamin C
264	2	Chemical antagonism
265	2	Homocysteine methyl transferase

266	1	Lysosomes
267	1	Riboflavin
268	1	ALA synthase is affected
269	4	Vitamin K
270	3	Vitamin B3
271	3	Zinc
272	2	Vitamin B
273	4	Vitamin B1
274	2	Vitamin E
275	4	Requires for conversion of pyruvate to lactate
276	1	Vitamin K
277	1	A
278	3	Niacin (Vitamin B3)
279	1	Carboxylation
280	1	Folic acid
281	4	All
282	4	transketolase activity
283	2	Calcium
284	2	Pellagra
285	4	Iron
286	1	Vitamin C
287	3	Water soluble vitamin
288	2	Niacin deficiency
289	1	Alpha
290	1	Pyridoxine

291	3	Vitamin E
292	2	Hypochromic, microcytic anemia
293	4	Vitamin B12
294	2	Liver
295	3	Hydroxylation
296	1	0.5 mg
297	1	Folic acid
298	1	Transketolase
299	3	1 hydroxylation of vitamin D
300	2	Copper
301	4	All of the above
302	1	5-formyl tetrahydrofolate
303	4	Vitamin D intoxication
304	2	Homocysteinemia
305	1	Folic acid
306	3	Thiamine
307	3	Phenylalanine hydroxylase
308	1	Thiamine
309	3	Vitamin E
310	3	7.36-7.44
311	2	Hydrogen peroxide
312	2	Vitamin C
313	4	Abnormal test rules out primary intestinal malabsorption
314	3	b-carotene

315	1	Vitamin C
316	2	Biotin
317	1	Vitamin E
318	3	Antioxidant
319	3	Vitamin C
320	1	Hartnup's disease
321	1	Copper
322	1	Antioxidant
323	1	Multiple carboxylase deficiency
324	2	Vitamin C
325	1	Folic acid
326	2	B3
327	2	Riboflavin
328	1	Vitamin A
329	3	Maple syrup urine disease
330	3	Vitamin E
331	1	Abnormality in gene for procollagen
332	4	Requires for conversion of pyruvate to lactate
333	3	Requires a specific glycoprotein for its absorption
334	2	1- 25 - dihydroxy cholecalciferol
335	2	Vit K
336	1	Vit B1
337	3	Retinoic acid
338	4	Vitamin B12
339	1	Increases cobalamin absorption

340	3	Liver
341	3	1,25-dihydroxycholecalciferol
342	3	Vitamin K
343	2	Histidine
344	3	FIGLU
345	1	Vitamin D
346	3	Carboxylation of glutamate
347	4	Pyridoxine
348	3	Vitamin K
349	1	RBC Transketolase
350	4	Protection of biological membrane from free radical damage
351	4	Sunlight
352	4	Transferrin
353	1	High amount of leucine
354	3	Niacin
355	2	Net protein utilization
356	2	Thiamine
357	3	Folic acid
358	1	Prolyl hydroxylase
359	3	Vitamin C
360	2	Pyruvate carboxylase
361	2	Pantothenic acid
362	1	Biotin
363	1	Transketolase

364	4	Vit K
365	2	Trans-sulfuration
366	4	Riboflavin
367	4	Egg
368	1	Potato
369	2	Riboflavin
370	1	Folic acid
371	3	Pyridoxine
372	1	Vitamin A
373	4	Vitamin B6
374	2	Vitamin B12
375	1	Vitamin K
376	1	Vit. B2
377	2	Nicotinic acid
378	1	Transketolase
379	1	Vitamin E
380	2	Anaemia
381	2	RBC glutathione reductase
382	1	Thiamine
383	3	Niacin
384	2	Folic Acid
385	3	Niacin
386	3	Vitamin E
387	1	25-(OH) D3
388	1	Thiamine

389	2	Cell membrane
390	3	Glutamate
391	3	C
392	1	Lactate to pyruvate
393	1	FMN
394	3	Folic acid
395	2	RBC - Transketolase levels
396	3	Selenium
397	1	Acetyl CoA & alanine
398	1	Thiamine
399	2	Glutathione reductase
400	1	Glutathione peroxidase
401	3	Liver
402	2	Pellagra
403	4	Xanthine oxidase
404	4	All of the above
405	3	Lysosome
406	2	Diarrhea
407	2	Selenium
408	1	Fish liver
409	2	Vitamin B
410	2	Glutathione peroxidase
411	1	Vitamin B12
412	3	Glutathione peroxidase
413	1	Methylene THF

414	2	Glutamate
415	1	Km increased, Vmax same
416	3	2,00,000 U
417	3	Nicotinic acid
418	1	Niacin
419	2	Vitamin C
420	3	VIII
421	2	Zinc deficiency