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NET JRF TEST 9

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Contact Number: 9350232207, 9891602060

TEST-9

(Amino Acid Metabolism, Cordinated control of metabolism, Biosynthesis of Purines & Pyrimidines, Oxidation of Lipids, Biosynthesis of Fatty acid, Triglyceride, Phospholipid and Sterol.)

1. Site of action of transcarbamoylase reaction during urea cycle is
 - (a) cytosol
 - (b) mitochondria
 - (c) liver
 - (d) kidney
 - (e) heart
2. Enzyme required for the HMG-CoA synthesis are present in ----- during cholesterol metabolism?
 - (a) mitochondria
 - (b) intestinal mucosa
 - (c) cytosol
 - (d) endoplasmic reticulum
 - (e) golgi bodies
3. During minor pathway 2 mono acyl glycerol are converted to ----- in the presence of enzyme 2 mono acyl glycerol acyl transferase?
 - (a) 1,2 diacyl glycerol
 - (b) lysophosphotidic acid
 - (c) triglycerol
 - (d) phosphotidic acid
 - (e) DHAP
4. The major salvage pathway is catalyzed by enzymes
 - (a) APRTase
 - (b) HMG-CoA
 - (c) HGPRTase
 - (d) both 1&2
 - (e) both1&3
5. Disease caused in humans due to the deficiency in the bifunctional enzyme catalyzing pyrimidine nucleotide biosynthesis?
 - (a) phenyl ketonuria
 - (b) orotic aciduria
 - (c) pernicious anemia
 - (d) sickle cell anemia

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(e) albinism

6. complex structure of cobalamin/vit B12 was derived by?

- (a) Fnooz hons
- (b) Dorothy Hodgkin
- (c) Sarah Ratner&philip cohen
- (d) Jung-ja-kim
- (e) Snell

7. How many ATP's are produced during the reduction of O₂ to H₂O by electron transport chain beginning at the CoQ stage?

- (a) 2
- (b) 129
- (c) 250
- (d) 4
- (e) 8

8. How many cycles of ACP are reloaded with a malonyl group and the acyl chain required forming palmitoyl-ACP?

- (a) 7
- (b) 8
- (c) 4
- (d) 2
- (e) 3

9. Which among the following is essential fatty acid?

- (a) oleic acid
- (b) linoleic acid
- (c) palmitic acid
- (d) acetyl CoA
- (e) manoyl CoA

10. In triacylglycerol bio synthesis glycerol is activated to form glycerol-3-phosphate by ATP requiring enzyme called?

- (a) glycerol-3-phosphate dehydrogenase
- (b) glycrokinase
- (c) acyl transferase
- (d) glyco-carboxylase
- (e) all

11. Leucine & lysine are degraded to----- during breakdown of amino acid

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- (a) oxaloacetate
- (b) pyruvate
- (c) acetyl-CoA
- (d) succinyl-CoA
- (e) PMP

12. Predominant a.a acceptor in transamination process which produce glutamate is

- (a) oxaloacetate
- (b) alfa-ketoglutarate
- (c) pyridoxal-5-phosphate(PLP)
- (d) acetyl-COA
- (e) pyridoxamine-5-phosphate

13. The final round of beta-oxidation of odd chain fatty acids yields?

- (a) propionyl-CoA
- (b) enoyl COA
- (c) acetyl-CoA
- (d) both1&2
- (e) none

14. thiolase reaction of beta-oxidation occurs via?

- (a) hydrolysis
- (b) schiffs base
- (c) dehydrogenation
- (d) claisen ester cleavage
- (e) oxidative deamination

15. Individual reactions of urea cycle were described by?

- (a) krebs&kurt
- (b) snell,braunstein,metzler
- (c) sarah Ratner&philip cohen
- (d) hanstein
- (e) franz knoop

16. palmitate ,a saturated C16 fatty acid is converted to longer chain saturated and unsaturated fatty acids through the actions of ?

- (a) elongases
- (b) desaturases
- (c) both
- (d) decarboxylases
- (e) none

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17. Non -essential amino acid which is both ketogenic & glycogenic?
- (a) Tyr
 - (b) Met
 - (c) Leu
 - (d) Val
 - (e) His
18. In plants fatty acid oxidation majorly occurs in?
- (a) peroxisomes
 - (b) mitochondria
 - (c) glyoxysomes
 - (d) both1&3
 - (e) both1&2
19. Co-factor used to catalyze carbamyl phosphate synthetase to condense ammonium ion in urea cycle?
- (a) Ca⁺⁺
 - (b) Mg⁺⁺
 - (c) N-acetyl glutamate
 - (d) both 1&3
 - (e) both1&2
20. To start the purine biosynthesis with phosphoribosyl pyrophosphate is formed by the condensation of ?
- (a) ribose-5-phosphate with ATP
 - (b) ribose-5-phosphate with NADH
 - (c) glucose-5-phosphate
 - (d) glucose-5-phosphate with NADH
 - (e) all
21. Substrate required for triacylglycerides synthesis?
- (a) alfa-glycerol phosphate
 - (b) fatty acid in the form of acyl coA
 - (c) Both a & b
 - (d) none
 - (e) oxaloacetate
22. Who first described the de novo synthesis of purines in pigeons?
- (a) Sarah Ratner
 - (b) Tietz&shapiro

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- (c) John buchanan
- (d) Snell&david
- (e) Krebs

23. In the synthesis of phosphatidylinositol and phosphatidylglycerol ----- is activated rather than normal polar head group?

- (a) hydrophobic tail
- (b) hydrophilic tail
- (c) ester linkage
- (d) choline
- (e) polar head group

24. During biosynthesis of triacyl glycerol in both liver and adipose tissue ----- serves as the precursor for glycerol-3-phosphate?

- (a) glucose
- (b) fructose
- (c) pyruvate
- (d) acetyl CoA
- (e) glycerol

25. Which among the following is a sialic acid containing ceramide oligosaccharides?

- (a) cerebrosides
- (b) gangliosides
- (c) cardiolipin
- (d) cardiosides
- (e) all

26. All the carbon atom of cholesterol are derived from?

- (a) pyruvate
- (b) acetate
- (c) carbonate
- (d) glycogen
- (e) transferase

27. The differences between the elongases & desaturases pathway is?

- (a) NADPH takes the place of FADH2 as co enzyme
- (b) ATP takes the place of NAD+
- (c) ACP derivatives are elongated
- (d) biotin is used as co enzyme
- (e) all

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28. Asparagine & Aspartate are degraded to ----- during breakdown of amino acids?

- (a) oxaloacetate
- (b) ornithine
- (c) propionyl-CoA
- (d) succinyl-CoA
- (e) pyruvate

29. cholesterol biosynthesis was first described by?

- (a) Konrad Bloch
- (b) Tietz&shapiro
- (c) Franz knoop
- (d) Snell
- (e) none

30. A polar head groups of glycerophospholipids are linked to C3 of the glycerol via?

- (a) hydrophobic bond
- (b) phosphodiester bond
- (c) hydrophilic bond
- (d) hydrogen double bond
- (e) all

31. Flavoproteins used in deamination process is?

- (a) NAD,NADH+
- (b) FMN,FAD
- (c) NH₃
- (d) CH₃
- (e) COOH

32. Which among the following is key cholesterol precursor?

- (a) acyl CoA ester
- (b) HMG-CoA
- (c) acetyl-CoA
- (d) malonyl -CoA
- (e) all

33. Which among the following is a precursor of both gangliosides and globosides?

- (a) lactosyl ceremide
- (b) monosaccharide ceremide
- (c) oligonucleotide ceremide

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- (d) all
- (e) none

34. The pyrimidine ring is synthesized from?

- (a) carbomyl phosphate
- (b) aspartate
- (c) glutamate
- (d) both 1&2
- (e) both1&3

35. acyl CoA is esterified with diacyl glycerol in the presence of 1,2 diacylglycerol acyl transferases to form?

- (a) triacyl glycerol
- (b) DHAP
- (c) phosphidic acid
- (d) glycerol
- (e) malate

36. Which among the following acts as epidermal sphingolipids that function as the skin's water permeability barriers?

- (a) linoleic acid
- (b) palmitic acid
- (c) prostaglandis
- (d) succinyl CoA
- (e) oleic acid

37. Which is the nitrogen source in the synthesis of carbamoyl phosphate in pyrimidine synthesis?

- (a) ammonia
- (b) urea
- (c) uric acid
- (d) all
- (e) none

38. In mammals purines are mostly salvaged by two different enzymes?

adeninephosphoribosyltransferase(APRT)

- (a) PRPP
- (b) AMP
- (c) both 1&2
- (d) both1&3

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39. In purines molecule N3 & N9 are derived from?

- (a) glycine
- (b) aspartate
- (c) glutamine
- (d) all
- (e) none

40. Minor pathway of triacylglycerides biosynthesis occurs in?

- (a) liver
- (b) kidney
- (c) Intestinal mucosa
- (d) brain
- (e) heart

41. Cholesterol is synthesized in ?

- (a) liver
- (b) kidney
- (c) brain
- (d) heart
- (e) lungs

42. Lactosyl is a neural oligonucleotide ceremide used to form?
globosides

- (a) cerebriosides
- (b) cardiolipin
- (c) glucosides
- (d) all

43. N1 of purine is originated from the amino group of?

- (a) palmitate
- (b) aspartate
- (c) malate
- (d) phosphate
- (e) all

44. site of action of deamination process is?

- (a) kidney
- (b) liver
- (c) brain
- (d) heart
- (e) mitochondria

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45. VitB12 deficiency causes?

- (a) pernicious anemia
- (b) rickets
- (c) sickle cell anemia
- (d) phenyl ketonuria
- (e) all

46. Enzyme that catalyzes transamination process is?

- (a) oxaloacetate
- (b) Aminotransferases
- (c) dehydrogenases
- (d) PMP
- (e) PLP

47. The co-factors utilized for pyrimidine synthetases are?

- (a) NAD⁺
- (b) Mg⁺⁺
- (c) Co
- (d) all
- (e) both 1&2

48. Lysosomal selective pathway activated during prolonged fast which imports cytosolic proteins containing the pentapeptides. Identify the pentapeptide from the following?

- (a) KFERQ
- (b) LAVTG
- (c) Ubiquitin
- (d) SPVGC
- (e) FTLSQ

49. The presence of double bond at an even numbered carbon atom results in the formation of?

- (a) 2,4 dienoyl CoA
- (b) enoyl COA
- (c) acetyl-CoA
- (d) diacetyl -CoA
- (e) 1,2 DIENOYL CoA

50. pyrimidine bio synthesis is catalyzed by how many enzyme catalyzed reactions?

- (a) 8
- (b) 6

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- (c) 12
- (d) 3
- (e) 5

51. Beta-oxidation occurs in?

- (a) ER
- (b) mitochondrial matrix
- (c) cytosol
- (d) ribosomes
- (e) lysosomes

52. Farnesyl pyrophosphate is a precursor of ----- in mammals?

- (a) ubiquinone
- (b) protosterol
- (c) squalene
- (d) ubiquinine
- (e) cholesterol

53. End product of oxidative deamination?

- (a) urea
- (b) ammonia
- (c) alfa-keto acid
- (d) uric acid
- (e) PMP

54. Major site providing purines to the salvage pathway is?

- (a) liver
- (b) kidney
- (c) lungs
- (d) heart
- (e) brain

55. Which among the following is a ceramide monosacchride?

- (a) cerebroside
- (b) ganglioside
- (c) cardiolipin
- (d) cardioside
- (e) all

56. In pyrimidine biosynthesis glutamine is converted to ----- in the presence the enzyme carbomoyl phosphate synthetase2?

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- (a) carbomoyl phosphate
- (b) carbomonyl aspartate
- (c) pyruvate
- (d) IMP
- (e) NONE

57. Glycerophospholipids present in eukaryotic membrane which contains a hydrocarbon chain linked to glycerol C1 via vinyl ether linkage?

- (a) plasmalogens
- (b) glucogens
- (c) peroxinogens
- (d) cerebrosides
- (e) gangliosides

58. Isoleucine, methonine, valine have a complex degradative pathway that yeilds?

- (a) propionyl-CoA
- (b) oxaloacetate
- (c) ornithine
- (d) pyruvate
- (e) alfa-ketoglutarate

59. Enzyme which favours the oxidation of unsaturated fatty acids?

- (a) enoyl Co A hydratase
- (b) enoyl COA isomerase
- (c) dehydrogenase
- (d) reductase
- (e) none

60. Essential amino acid which does take part in transamination process?

- (a) valine
- (b) tyrosine
- (c) thronine
- (d) phenyl alanine
- (e) alanine

61. Intermediate of fatty acid bio synthesis?

- (a) molonyl CoA
- (b) acetyl CoA
- (c) oxaloacetate
- (d) alfa-ketoglutarate
- (e) none

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62. The X-ray structure of medium chain acyl coA are determined by?
(a) jung ja kim
(b) frooz knoop
(c) hans kerbs
(d) sarah ratner
(e) snell
63. Which among the following is a gastric protease?
(a) trypsin
(b) chymotrypsin
(c) pepsin
(d) elastase
(e) none
64. When multiubiquitin chain is linked to a target protein ----- of each ubiquitin forms as isopeptide bond with the carboxyl group of the following ubiquitin?
(a) Glu35
(b) Lys48
(c) Thr48
(d) Phe31
(e) Lys26
65. How many carbon units are removed by enzyme catalysed reactions during beta-oxidation pathway?
(a) 4
(b) 8
(c) 1
(d) 2
(e) 3
66. Dogs fed labelled on odd-chain fatty acids excrets?
(a) ammonia
(b) urea
(c) hippuric acid
(d) uric acid
(e) phenyl aceturic acid
67. During pyrimidine biosynthesis dihydrorotate is converted to orotate by reducing-----
---?
(a) ornithine

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- (b) cardiolipin
- (c) glucosides
- (d) manoyl CoA

68. Unsaturated fatty acids oxidation occurs in?

- (a) oleic acid
- (b) linoleic acid
- (c) thiokinases
- (d) both 1&2
- (e) all

69. The oxidation of one palmitate molecule has a net yield of how many ATP's?

- (a) 131
- (b) 129
- (c) 250
- (d) 24
- (e) 14

70. In denovo synthesis of purines N-formyl glycinamide is converted to formyl glycinamide ribosyl-5-phosphate(FGAMR) in the presence of enzyme?

- (a) FGAMR reductase
- (b) FGAMR synthetase
- (c) AIR synthase
- (d) AIR reductase
- (e) GAR formyl transferase

71. Which a.a undergo deamination without by passing transdeamination process?

- (a) threonine
- (b) glycine
- (c) phenyl alanine
- (d) alanine
- (e) arginine

72. Carbon skeleton of isoprene is condensed to form a linear molecule with 30 carbon atoms?

- (a) triacyl glycerides
- (b) cholesterol
- (c) glycerol
- (d) isopentenyl pyro phosphate
- (e) all

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73. The 5th CO-LIGAND IN ODD CHAIN FATTY ACIDS IS A N-ATOM OF -----NUCLEOTIDE THAT IS COVALENTLY LINKED TO THE CORRIN d ring?

- (a) DMB
- (b) PMP
- (c) PLP
- (d) FMN
- (e) oxaloacetate

74. The deficiency of ----- results in the depression of fatty acid biosynthesis?

- (a) vitamin B
- (b) biotin
- (c) lysine
- (d) insulin
- (e) both 1&2

75. Who first identified that ATP is required for the synthesis of neutral fatty acids from free fatty acids?

- (a) Sarah Ratner
- (b) Franz Knoop
- (c) Tietz&Shapiro
- (d) Snell&David
- (e) None

76. Which among the following is not capable of synthesizing purines through de novo synthesis?

- (a) erythrocytes
- (b) neutrophil
- (c) C4 brain
- (d) all
- (e) none

77. An important structural lipid of nerve cell membrane?

- (a) sphingomyelin
- (b) sphingoleucin
- (c) sphinganine
- (d) all
- (e) none

78. Net ATP production in palmitoyl CoA oxidation is?

- (a) 129
- (b) 127

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- (c) 131
- (d) 163
- (e) 110

79. ----- is formed by the condensation of six isoprene units

- (a) squalene
- (b) lanosterol
- (c) cholestrol
- (d) mevalonate
- (e) none

80. ----- is phosphorylated by AMP dependent protein kinase in C-AMP independent pathway?

- (a) Ser79
- (b) Lys48
- (c) Glu38
- (d) Lys23
- (e) Ser31

81. The syndrome caused due to severe deficiency of HGPRT?

- (a) down's syndrome
- (b) turners syndrome
- (c) lesch-nyhan syndrome
- (d) edward syndrome
- (e) all

82. Site of synthesis of triacylglycerol is?

- (a) endoplsmic reticulum
- (b) mitochondria
- (c) both a & b
- (d) cytosol
- (e) peroxisomes

83. Net ATP production in oleic acid oxidation is?

- (a) 144
- (b) 129
- (c) 131
- (d) 163
- (e) 146

84. Method of oxidation of lipids was first explained by?

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- (a) Franz Knoop
- (b) Sarah Ratner
- (c) Hans Krebs
- (d) Braunstein
- (e) Snell

85. Half-life of rat liver enzyme ornithine decarboxylase is?

- (a) 5.0
- (b) 1.3
- (c) 0.2
- (d) 4.0
- (e) 2.0

86. Cholesterol synthesized is converted to bile acids or esterified by acyl CoA to form

- (a) cholesteryl ester
- (b) monosaccharide ceramide
- (c) phenyl acetic acid
- (d) reductase
- (e) transferase

87. D-amino acid oxidase is present in?

- (a) plants
- (b) microorganisms
- (c) mammals
- (d) yeast
- (e) bacteria

88. Triacylglycerols are synthesized from?

- (a) acyl CoA ester
- (b) glycerol-3 phosphate
- (c) dihydroxyacetone phosphate
- (d) all
- (e) none

89. C- α -C- β cleavage in a thiolysis reaction with CoA as catalyzed by

- (a) beta ketoacyl CoA thiolase
- (b) dehydrogenase
- (c) pyruvate
- (d) ornithine
- (e) none

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90. Site of action of fatty acid bio synthesis?
- (a) cytosol
 - (b) mitochondria
 - (c) endoplasmic reticulum
 - (d) lysosomes
 - (e) none
91. ----- are formed by condensing two molecules of phosphatidylglycerol with the elimination of one molecule of glycerol?
- (a) cardiolipin
 - (b) ornithine
 - (c) phosphatidyl serine
 - (d) carbomyl phosphate
 - (e) triacylglycerol
92. In pyrimidine bio synthesis orotidine monophosphate(OMP) is converted to uridine monophosphate in the presence of the enzyme?
- (a) OMP decarboxylase
 - (b) OMP synthase
 - (c) OMP carboxylase
 - (d) uridine decarboxylase
 - (e) none
93. Squalene epoxidase catalyzes oxidation of squalene to form?
- (a) lanosterol
 - (b) protosterol
 - (c) 2,3 oxidosqualene
 - (d) geranyl pyrophosphate
 - (e) all
94. Inosine monophosphate (IMP) is the precursor for?
- (a) AMP
 - (b) GMP
 - (c) PRPP'S
 - (d) both 1&2
 - (e) both1&3
95. ----- stimulates dephosphorylation of acetyl CoA carboxylase and there by activates the enzyme during fatty acid bio synthesis?
- (a) glycogen
 - (b) insulin

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- (c) glucagon
- (d) biotin
- (e) vitB12

96. triacylglycerol are mostly occurs in?

- (a) liver
- (b) kidney
- (c) brain
- (d) heart
- (e) all

97. out of the following which enzyme is having low Km value?

- (a) APRTase
- (b) HMG-CoA
- (c) HGPRTase
- (d) PRPP
- (e) COOH

98. Before fatty acid are oxidized they are primed, activated and catalysed by ?

- (a) thiokinases
- (b) oxaloacetate
- (c) phenyl acetic acid
- (d) pyrophosphate
- (e) benzoic acid

99. Alkylacyl glycerophospholipids is synthesized and ether is oxidized to vinyl ether through the action of?

- (a) desaturase
- (b) decarboxylase
- (c) dehydrogenase
- (d) transferase
- (e) detransferase

100. Ping-pong mechanism was first proposed by?

- (a) kritzmann
- (b) snell,braunstein,metzler
- (c) kerbs
- (d) kerbs&kurt hansleit
- (e) emil fischer,paul feilds

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