

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MBBS 0825]

AUGUST 2025

Sub. Code: 7055

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2024-2025)

FIRST PROFESSIONAL – (CBME)

PAPER I – BIOCHEMISTRY

Q.P. Code: 527055

Time: 20 Minutes

Maximum : 20 Marks

Answer All Questions

Shade the correct answer with Black or Blue ink ball point pen

SET - A

IV. Multiple Choice Questions:

(20 x 1 = 20)

1. All the following activities are taking place inside mitochondria EXCEPT
 - A) Tricarboxylic acid cycle
 - B) Electro Transport Chain
 - C) Beta Oxidation of Fatty acid
 - D) Denovo fatty acid synthesis
2. A 2 year old baby presented with delayed milestones. Which inborn error in carbohydrate metabolism is Mental retardation a feature?
 - A) EssentialPentosuria
 - B) Galactosemia
 - C) Carnitine deficiency
 - D) Glucose -6- Phosphate dehydrogenase deficiency
3. A newborn baby present with recurrent hypoglycemia. All are the reasons for hypoglycemia in Impaired Beta Oxidation EXCEPT
 - A) Low Acetyl CoA
 - B) Low NADH
 - C) High Insulin
 - D) Low ATP
4. Lipotropic factors are substances that
 - A) Prevents Fatty liver
 - B) Prevent cholesterol deposition in Liver
 - C) Prevent atherosclerosis
 - D) Induce Fatty liver
5. Sources of NADPH include all EXCEPT
 - A) Glucose -6- Phosphate dehydrogenase
 - B) 6-phosphogluconate dehydrogenase
 - C) Cytosolic Malate dehydrogenase
 - D) CytosolicIsocitrate dehydrogenase
6. In a competitive inhibition
 - A) Inhibitor has structural similarity to substrate
 - B) Km is decreased
 - C) Vmax is decreased
 - D) Reaction rate is independent of substrate concentration
7. Unsaturation of fatty acids is taking place in which of the following sub cellular fraction?
 - A) Mitochondria
 - B) Endoplasmic reticulum
 - C) Peroxisome
 - D) Lysosome
8. Which of the following dietary modifications have minimum hypocholesterolemic action?
 - A) Inclusion of fruits and vegetables
 - B) Dietary cholesterol <300mg/day
 - C) Intake of whole wheat bran
 - D) Consuming fish as the only non-veg food

9. Vitamin K is inhibited by
A) Isoniazid B) Methotrexate C) Dicoumarol D) Avidin
10. Which of the following vitamin is required for oxidative decarboxylation?
A) Thiamine pyrophosphate B) Pyroxidal phosphate C) Biotin D) Riboflavin
11. Daily requirement of Vitamin C is
A) 50 mg/day B) 75 mg/day C) 25 mg/day D) 100 mg/day
12. A symptomatic 45 year old woman came for checkup in a clinic. She is found to be hypercalcemic. Which hormone testing helps to differentiate the causes of hypercalcemia?
A) PTH B) Glucagon C) Vitamin B₁₂ D) Growth hormone
13. The Enzymes of Electron Transport Chain belong to the following classes except
A) Oxidases B) Dehydrogenases C) Peroxidases D) Reductases
14. Copper dependent enzymes are all EXCEPT
A) Homogentisate Oxidase B) Cytochrome Oxidase
C) Lysyl oxidase D) Tyrosinase
15. Iron is deficient in
A) Cereals B) Maize C) Milk D) Pulses
16. Which of the following element has antioxidant role?
A) Chromium B) Zinc C) Selenium D) Nickel
17. An elderly male presented with constipation. Physician advised him to take fibre rich diet. Increased intake of dietary fibre
A) Increase bowel motility B) Promotes constipation
C) Increases Cholesterol level D) Decreases glucose tolerance
18. Body is in positive nitrogen balance in
A) Corticosteroid therapy B) Chronic illness
C) Convalescence after illness D) Acute illness
19. A baby with severe malnutrition presented with edema to the pediatric clinic. The age of onset of Kwashiorkor is
A) Below 1 year B) 1 to 5 years C) More than 5 years D) 6 months
20. For which of the following test fasting sample is preferred?
A) Bilirubin B) Triglycerides C) Lipase D) Uric acid

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2024-2025)

FIRST PROFESSIONAL – (CBME)

PAPER I – BIOCHEMISTRY

Q.P. Code: 527055

Time: 20 Minutes

Maximum : 20 Marks

Answer All Questions

Shade the correct answer with Black or Blue ink ball point pen

SET - B

IV. Multiple Choice Questions:

(20 x 1 = 20)

1. Sources of NADPH include all EXCEPT
A) Glucose -6- Phosphate dehydrogenase B) 6-phosphogluconate dehydrogenase
C) Cytosolic Malate dehydrogenase D) Cytosolic Isocitrate dehydrogenase
2. In a competitive inhibition
A) Inhibitor has structural similarity to substrate
B) K_m is decreased
C) V_{max} is decreased
D) Reaction rate is independent of substrate concentration
3. Unsaturation of fatty acids is taking place in which of the following sub cellular fraction?
A) Mitochondria B) Endoplasmic reticulum C) Peroxisome D) Lysosome
4. Which of the following dietary modifications have minimum hypocholesterolemic action?
A) Inclusion of fruits and vegetables B) Dietary cholesterol <300mg/day
C) Intake of whole wheat bran D) Consuming fish as the only non-veg food
5. Vitamin K is inhibited by
A) Isoniazid B) Methotrexate C) Dicoumarol D) Avidin
6. Which of the following vitamin is required for oxidative decarboxylation?
A) Thiamine pyrophosphate B) Pyroxidal phosphate C) Biotin D) Riboflavin
7. Daily requirement of Vitamin C is
A) 50 mg/day B) 75 mg/day C) 25 mg/day D) 100 mg/day
8. A symptomatic 45 year old woman came for checkup in a clinic. She is found to be hypercalcemic. Which hormone testing helps to differentiate the causes of hypercalcemia?
A) PTH B) Glucagon C) Vitamin B₁₂ D) Growth hormone
9. The Enzymes of Electron Transport Chain belong to the following classes except
A) Oxidases B) Dehydrogenases C) Peroxidases D) Reductases

10. Copper dependent enzymes are all EXCEPT
A) Homogentisate Oxidase B) Cytochrome Oxidase
C) Lysyl oxidase D) Tyrosinase
11. Iron is deficient in
A) Cereals B) Maize C) Milk D) Pulses
12. Which of the following element has antioxidant role?
A) Chromium B) Zinc C) Selenium D) Nickel
13. An elderly male presented with constipation. Physician advised him to take fibre rich diet. Increased intake of dietary fibre
A) Increase bowel motility B) Promotes constipation
C) Increases Cholesterol level D) Decreases glucose tolerance
14. Body is in positive nitrogen balance in
A) Corticosteroid therapy B) Chronic illness
C) Convalescence after illness D) Acute illness
15. A baby with severe malnutrition presented with edema to the pediatric clinic. The age of onset of Kwashiorkor is
A) Below 1 year B) 1 to 5 years C) More than 5 years D) 6 months
16. For which of the following test fasting sample is preferred?
A) Bilirubin B) Triglycerides C) Lipase D) Uric acid
17. All the following activities are taking place inside mitochondria EXCEPT
A) Tricarboxylic acid cycle B) Electro Transport Chain
C) Beta Oxidation of Fatty acid D) De novo fatty acid synthesis
18. A 2 year old baby presented with delayed milestones. Which inborn error in carbohydrate metabolism is Mental retardation a feature?
A) Essential Pentosuria B) Galactosemia
C) Carnitine deficiency D) Glucose -6- Phosphate dehydrogenase deficiency
19. A newborn baby present with recurrent hypoglycemia. All are the reasons for hypoglycemia in Impaired Beta Oxidation EXCEPT
A) Low Acetyl CoA B) Low NADH C) High Insulin D) Low ATP
20. Lipotropic factors are substances that
A) Prevents Fatty liver B) Prevent cholesterol deposition in Liver
C) Prevent atherosclerosis D) Induce Fatty liver

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2024-2025)

FIRST PROFESSIONAL – (CBME)

PAPER I – BIOCHEMISTRY

Q.P. Code: 527055

Time: 20 Minutes

Maximum : 20 Marks

Answer All Questions

Shade the correct answer with Black or Blue ink ball point pen

SET - C

IV. Multiple Choice Questions:

(20 x 1 = 20)

1. Which of the following vitamin is required for oxidative decarboxylation?
A) Thiamine pyrophosphate B) Pyroxidal phosphate C) Biotin D) Riboflavin
2. Daily requirement of Vitamin C is
A) 50 mg/day B) 75 mg/day C) 25 mg/day D) 100 mg/day
3. A symptomatic 45 year old woman came for checkup in a clinic. She is found to be hypercalcemic. Which hormone testing helps to differentiate the causes of hypercalcemia?
A) PTH B) Glucagon C) Vitamin B₁₂ D) Growth hormone
4. The Enzymes of Electron Transport Chain belong to the following classes except
A) Oxidases B) Dehydrogenases C) Peroxidases D) Reductases
5. Copper dependent enzymes are all EXCEPT
A) Homogentisate Oxidase B) Cytochrome Oxidase
C) Lysyl oxidase D) Tyrosinase
6. Iron is deficient in
A) Cereals B) Maize C) Milk D) Pulses
7. Which of the following element has antioxidant role?
A) Chromium B) Zinc C) Selenium D) Nickel
8. An elderly male presented with constipation. Physician advised him to take fibre rich diet. Increased intake of dietary fibre
A) Increase bowel motility B) Promotes constipation
C) Increases Cholesterol level D) Decreases glucose tolerance
9. Body is in positive nitrogen balance in
A) Corticosteroid therapy B) Chronic illness
C) Convalescence after illness D) Acute illness

10. A baby with severe malnutrition presented with edema to the pediatric clinic. The age of onset of Kwashiorkor is
A) Below 1 year B) 1 to 5 years C) More than 5 years D) 6 months
11. For which of the following test fasting sample is preferred?
A) Bilirubin B) Triglycerides C) Lipase D) Uric acid
12. All the following activities are taking place inside mitochondria EXCEPT
A) Tricarboxylic acid cycle B) Electro Transport Chain
C) Beta Oxidation of Fatty acid D) Denovo fatty acid synthesis
13. A 2 year old baby presented with delayed milestones. Which inborn error in carbohydrate metabolism is Mental retardation a feature?
A) EssentialPentosuria B) Galactosemia
C) Carnitine deficiency D) Glucose -6- Phosphate dehydrogenase deficiency
14. A newborn baby present with recurrent hypoglycemia. All are the reasons for hypoglycemia in Impaired Beta Oxidation EXCEPT
A) Low Acetyl CoA B) Low NADH C) High Insulin D) Low ATP
15. Lipotropic factors are substances that
A) Prevents Fatty liver B) Prevent cholesterol deposition in Liver
C) Prevent atherosclerosis D) Induce Fatty liver
16. Sources of NADPH include all EXCEPT
A) Glucose -6- Phosphate dehydrogenase B) 6-phosphogluconate dehydrogenase
C) Cytosolic Malate dehydrogenase D) CytosolicIsocitrate dehydrogenase
17. In a competitive inhibition
A) Inhibitor has structural similarity to substrate
B) Km is decreased
C) Vmax is decreased
D) Reaction rate is independent of substrate concentration
18. Unsaturation of fatty acids is taking place in which of the following sub cellular fraction?
A) Mitochondria B) Endoplasmic reticulum C) Peroxisome D) Lysosome
19. Which of the following dietary modifications have minimum hypocholesterolemic action?
A) Inclusion of fruits and vegetables B) Dietary cholesterol <300mg/day
C) Intake of whole wheat bran D) Consuming fish as the only non-veg food
20. Vitamin K is inhibited by
A) Isoniazid B) Methotrexate C) Dicoumarol D) Avidin

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2024-2025)

FIRST PROFESSIONAL – (CBME)

PAPER I – BIOCHEMISTRY

Q.P. Code: 527055

Time: 20 Minutes

Maximum : 20 Marks

Answer All Questions

Shade the correct answer with Black or Blue ink ball point pen

SET - D

IV. Multiple Choice Questions:

(20 x 1 = 20)

1. Iron is deficient in
A) Cereals B) Maize C) Milk D) Pulses
2. Which of the following element has antioxidant role?
A) Chromium B) Zinc C) Selenium D) Nickel
3. An elderly male presented with constipation. Physician advised him to take fibre rich diet. Increased intake of dietary fibre
A) Increase bowel motility B) Promotes constipation
C) Increases Cholesterol level D) Decreases glucose tolerance
4. Body is in positive nitrogen balance in
A) Corticosteroid therapy B) Chronic illness
C) Convalescence after illness D) Acute illness
5. A baby with severe malnutrition presented with edema to the pediatric clinic. The age of onset of Kwashiorkor is
A) Below 1 year B) 1 to 5 years C) More than 5 years D) 6 months
6. For which of the following test fasting sample is preferred?
A) Bilirubin B) Triglycerides C) Lipase D) Uric acid
7. All the following activities are taking place inside mitochondria EXCEPT
A) Tricarboxylic acid cycle B) Electro Transport Chain
C) Beta Oxidation of Fatty acid D) De novo fatty acid synthesis
8. A 2 year old baby presented with delayed milestones. Which inborn error in carbohydrate metabolism is Mental retardation a feature?
A) Essential Pentosuria B) Galactosemia
C) Carnitine deficiency D) Glucose -6- Phosphate dehydrogenase deficiency
9. A newborn baby present with recurrent hypoglycemia. All are the reasons for hypoglycemia in Impaired Beta Oxidation EXCEPT
A) Low Acetyl CoA B) Low NADH C) High Insulin D) Low ATP

10. Lipotropic factors are substances that
A) Prevents Fatty liver B) Prevent cholesterol deposition in Liver
C) Prevent atherosclerosis D) Induce Fatty liver
11. Sources of NADPH include all EXCEPT
A) Glucose -6- Phosphate dehydrogenase B) 6-phosphogluconate dehydrogenase
C) Cytosolic Malate dehydrogenase D) Cytosolic Isocitrate dehydrogenase
12. In a competitive inhibition
A) Inhibitor has structural similarity to substrate
B) K_m is decreased
C) V_{max} is decreased
D) Reaction rate is independent of substrate concentration
13. Unsaturation of fatty acids is taking place in which of the following sub cellular fraction?
A) Mitochondria B) Endoplasmic reticulum C) Peroxisome D) Lysosome
14. Which of the following dietary modifications have minimum hypocholesterolemic action?
A) Inclusion of fruits and vegetables B) Dietary cholesterol <300mg/day
C) Intake of whole wheat bran D) Consuming fish as the only non-veg food
15. Vitamin K is inhibited by
A) Isoniazid B) Methotrexate C) Dicoumarol D) Avidin
16. Which of the following vitamin is required for oxidative decarboxylation?
A) Thiamine pyrophosphate B) Pyroxidal phosphate C) Biotin D) Riboflavin
17. Daily requirement of Vitamin C is
A) 50 mg/day B) 75 mg/day C) 25 mg/day D) 100 mg/day
18. A symptomatic 45 year old woman came for checkup in a clinic. She is found to be hypercalcemic. Which hormone testing helps to differentiate the causes of hypercalcemia?
A) PTH B) Glucagon C) Vitamin B₁₂ D) Growth hormone
19. The Enzymes of Electron Transport Chain belong to the following classes except
A) Oxidases B) Dehydrogenases C) Peroxidases D) Reductases
20. Copper dependent enzymes are all EXCEPT
A) Homogentisate Oxidase B) Cytochrome Oxidase
C) Lysyl oxidase D) Tyrosinase

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MBBS 1025]

OCTOBER 2025

Sub. Code: 7055

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2024-2025)

FIRST PROFESSIONAL – SUPPLEMENTARY (CBME)

PAPER I – BIOCHEMISTRY

Q.P. Code: 527055

Time: 20 Minutes

Maximum : 20 Marks

Answer All Questions

Shade the correct answer with Black or Blue ink ball point pen

SET - A

IV. Multiple Choice Questions:

(20 x 1 = 20)

1. The fluid mosaic model of membranes include
 - A) Cholesterol molecules in the membrane increase the stability
 - B) Membrane contains bimolecular leaflet of lipids
 - C) Membrane proteins are fixed and cannot move
 - D) Permeability of drugs across cell membrane is dependent on their solubility in water
2. Fructokinase catalyses which reaction?
 - A) Fructose to Fructose -6-Phosphate
 - B) Fructose to Fructose -1-Phosphate
 - C) Fructose to Fructose -1,6-Phosphate
 - D) Fructose to Fructose -2,6-Phosphate
3. Exercise increases insulin sensitivity through
 - A) Upregulation of GLUT-4 receptors
 - B) Increase insulin secretion
 - C) Increase absorption of Glucose
 - D) Decrease absorption of Glucose
4. A healthy adult male wants to know his diabetic status since his parents have T2DM. The HbA1c level indicative of Diabetes Mellitus as per ADA criteria is
 - A) >5.7%
 - B) >6%
 - C) >6.5%
 - D) >6.2%
5. Ketone bodies cannot be utilized by
 - A) Skeletal Muscle
 - B) Smooth Muscle
 - C) Liver
 - D) Adipose tissue
6. The plasma sample of a 35 year old man after overnight refrigeration showed a creamy layer on top and opalescence below. The condition which is excluded is
 - A) Diabetes mellitus
 - B) Alcoholism
 - C) Hypothyroidism
 - D) Familial hypercholesterolemia
7. All of the following fatty acids are synthesized in our body EXCEPT
 - A) Palmitic Acid
 - B) Oleic Acid
 - C) Arachidonic Acid
 - D) Linolenic Acid
8. Termination of pregnancy is indicated in a 35 year old pregnant mother. Which eicosanoid derivative is useful in Medical termination of Pregnancy?
 - A) PGF_{2α}
 - B) PGI₂
 - C) PGH₂
 - D) TXA₂

9. Cyanide poisoning occurs due to
A) Inhibition of Cytochrome oxidase
B) Inhibition of Oxygen binding to hemoglobin
C) Inhibition of NADH CoQreductase
D) Uncoupling of oxidative phosphorylation
10. Secondary hyperlipidemia occurs in all the following conditions EXCEPT
A) Hypothyroidism
B) Alcoholism
C) Chronic Pancreatitis
D) Nephrotic syndrome
11. Skin and mucous membranes are affected in deficiency of all vitamins EXCEPT
A) Retinol
B) Riboflavin
C) Niacin
D) Calcitriol
12. The characteristic finding in hypobetalipoproteinemia is
A) Acanthocytosis
B) Orange tonsils
C) Eruptivexanthomas
D) Corneal arcus
13. All the following manifestations are seen in patients with pyridoxine deficiency EXCEPT
A) Skin rashes
B) Peripheral neuritis
C) Convulsions in children
D) Normocytic anaemia
14. Osteocalcin is a bone protein that helps in
A) Mineralization
B) Demineralization
C) Bone remodelling
D) Matrix production
15. Bronze diabetes occurs in
A) Rheumatoid arthritis
B) Hemosiderosis
C) Systemic lupus erythematosus
D) Diabetes mellitus
16. Normal calcium level in blood is
A) 4-5 mg/dL
B) 4-5 meq/L
C) 9 -11 mg/dL
D) 96-106 meq/L
17. In a patient with renal stones, serum calcium level was 12mg/dL and serum Inorganic phosphate was 2mg/dL. These findings are characteristic of
A) Excess Calcitonin secretion
B) Vitamin D deficiency
C) Hyperparathyroidism
D) Hypoparathyroidism
18. Trans fatty acids are
A) Nonatherogenic
B) They lower HDL cholesterol
C) They decrease shelf life of food
D) Low in processed foods
19. The limiting amino acid in rice is
A) Lysine, Threonine
B) Lysine, Tryptophan
C) Phenylalanine, Tyrosine
D) Cysteine, Methionine
20. A patient with constipation is advised high fibre diet. All are dietary constituents of fibre EXCEPT
A) Hemicellulose
B) Pectin
C) Lignin
D) Dextrin

10. Bronze diabetes occurs in
A) Rheumatoid arthritis B) Hemosiderosis
C) Systemic lupus erythematosus D) Diabetes mellitus
11. Normal calcium level in blood is
A) 4-5 mg/dL B) 4-5meq/L C) 9 -11 mg/dL D) 96-106meq/L
12. In a patient with renal stones, serum calcium level was 12mg/dL and serum Inorganic phosphate was 2mg/dL. These findings are characteristic of
A) Excess Calcitonin secretion B) Vitamin D deficiency
C) Hyperparathyroidism D) Hypoparathyroidism
13. Trans fatty acids are
A) Nonatherogenic B) They lower HDL cholesterol
C) They decrease shelf life of food D) Low in processed foods
14. The limiting aminoacid in rice is
A) Lysine, Threonine B) Lysine, Tryptophan
C) Phenylalanine, Tyrosine D) Cysteine, Methionine
15. A patient with constipation is advised high fibre diet. All are dietary constituents of fibre EXCEPT
A) Hemicellulose B) Pectin C) Lignin D) Dextrin
16. The fluid mosaic model of membranes include
A) Cholesterol molecules in the membrane increase the stability
B) Membrane contains bimolecular leaflet of lipids
C) Membrane proteins are fixed and cannot move
D) Permeability of drugs across cell membrane is dependent on their solubility in water
17. Fructokinase catalyses which reaction?
A) Fructose to Fructose -6-Phosphate B) Fructose to Fructose -1-Phosphate
C) Fructose to Fructose -1,6-Phosphate D) Fructose to Fructose -2,6-Phosphate
18. Exercise increases insulin sensitivity through
A) Upregulation of GLUT-4 receptors B) Increase insulin secretion
C) Increaseabsorption of Glucose D) Decrease absorption of Glucose
19. A healthy adult male wants to know his diabetic status since his parents have T2DM.The HbA1c level indicative of Diabetes Mellitus as per ADA criteria is
A) >5.7% B) b>6% C) >6.5% D) .>6.2%
20. Ketone bodies cannot be utilized by
A) Skeletal Muscle B) Smooth Muscle C) Liver D) Adipose tissue

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MBBS 1025]

OCTOBER 2025

Sub. Code: 7055

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2024-2025)

FIRST PROFESSIONAL – SUPPLEMENTARY (CBME)

PAPER I – BIOCHEMISTRY

Q.P. Code: 527055

Time: 20 Minutes

Maximum : 20 Marks

Answer All Questions

Shade the correct answer with Black or Blue ink ball point pen

SET - C

IV. Multiple Choice Questions:

(20 x 1 = 20)

1. The characteristic finding in hypobetalipoproteinemia is
A) Acanthocytosis B) Orange tonsils C) Eruptivexanthomas D) Cornealarcus
2. All the following manifestations are seen in patients with pyridoxine deficiency EXCEPT
A) Skin rashes B) Peripheral neuritis
C) Convulsions in children D) Normocytic anaemia
3. Osteocalcin is a bone protein that helps in
A) Mineralization B) Demineralization C) Boneremodelling D) Matrix production
4. Bronze diabetes occurs in
A) Rheumatoid arthritis B) Hemosiderosis
C) Systemic lupus erythematosus D) Diabetes mellitus
5. Normal calcium level in blood is
A) 4-5 mg/dL B) 4-5meq/L C) 9 -11 mg/dL D) 96-106meq/L
6. In a patient with renal stones, serum calcium level was 12mg/dL and serum Inorganic phosphate was 2mg/dL. These findings are characteristic of
A) Excess Calcitonin secretion B) Vitamin D deficiency
C) Hyperparathyroidism D) Hypoparathyroidism
7. Trans fatty acids are
A) Nonatherogenic B) They lower HDL cholesterol
C) They decrease shelf life of food D) Low in processed foods
8. The limiting aminoacid in rice is
A) Lysine, Threonine B) Lysine, Tryptophan
C) Phenylalanine, Tyrosine D) Cysteine, Methionine
9. A patient with constipation is advised high fibre diet. All are dietary constituents of fibre EXCEPT
A) Hemicellulose B) Pectin C) Lignin D) Dextrin

10. The fluid mosaic model of membranes include
A) Cholesterol molecules in the membrane increase the stability
B) Membrane contains bimolecular leaflet of lipids
C) Membrane proteins are fixed and cannot move
D) Permeability of drugs across cell membrane is dependent on their solubility in water
11. Fructokinase catalyses which reaction?
A) Fructose to Fructose -6-Phosphate B) Fructose to Fructose -1-Phosphate
C) Fructose to Fructose -1,6-Phosphate D) Fructose to Fructose -2,6-Phosphate
12. Exercise increases insulin sensitivity through
A) Upregulation of GLUT-4 receptors B) Increase insulin secretion
C) Increase absorption of Glucose D) Decrease absorption of Glucose
13. A healthy adult male wants to know his diabetic status since his parents have T2DM. The HbA1c level indicative of Diabetes Mellitus as per ADA criteria is
A) >5.7% B) >6% C) >6.5% D) >6.2%
14. Ketone bodies cannot be utilized by
A) Skeletal Muscle B) Smooth Muscle C) Liver D) Adipose tissue
15. The plasma sample of a 35 year old man after overnight refrigeration showed a creamy layer on top and opalescence below. The condition which is excluded is
A) Diabetes mellitus B) Alcoholism
C) Hypothyroidism D) Familial hypercholesterolemia
16. All of the following fatty acids are synthesized in our body EXCEPT
A) Palmitic Acid B) Oleic Acid C) Arachidonic Acid D) Linolenic Acid
17. Termination of pregnancy is indicated in a 35 year old pregnant mother. Which eicosanoid derivative is useful in Medical termination of Pregnancy?
A) PGF_{2α} B) PGI₂ C) PGH₂ D) TXA₂
18. Cyanide poisoning occurs due to
A) Inhibition of Cytochrome oxidase
B) Inhibition of Oxygen binding to hemoglobin
C) Inhibition of NADH CoQ reductase
D) Uncoupling of oxidative phosphorylation
19. Secondary hyperlipidemia occurs in all the following conditions EXCEPT
A) Hypothyroidism B) Alcoholism
C) Chronic Pancreatitis D) Nephrotic syndrome
20. Skin and mucous membranes are affected in deficiency of all vitamins EXCEPT
A) Retinol B) Riboflavin C) Niacin D) Calcitriol

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MBBS 1025]

OCTOBER 2025

Sub. Code: 7055

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2024-2025)

FIRST PROFESSIONAL – SUPPLEMENTARY (CBME)

PAPER I – BIOCHEMISTRY

Q.P. Code: 527055

Time: 20 Minutes

Maximum : 20 Marks

Answer All Questions

Shade the correct answer with Black or Blue ink ball point pen

SET - D

IV. Multiple Choice Questions:

(20 x 1 = 20)

1. Trans fatty acids are
 - A) Nonatherogenic
 - B) They lower HDL cholesterol
 - C) They decrease shelf life of food
 - D) Low in processed foods
2. The limiting aminoacid in rice is
 - A) Lysine, Threonine
 - B) Lysine, Tryptophan
 - C) Phenylalanine, Tyrosine
 - D) Cysteine, Methionine
3. A patient with constipation is advised high fibre diet. All are dietary constituents of fibre EXCEPT
 - A) Hemicellulose
 - B) Pectin
 - C) Lignin
 - D) Dextrin
4. The fluid mosaic model of membranes include
 - A) Cholesterol molecules in the membrane increase the stability
 - B) Membrane contains bimolecular leaflet of lipids
 - C) Membrane proteins are fixed and cannot move
 - D) Permeability of drugs across cell membrane is dependent on their solubility in water
5. Fructokinase catalyses which reaction?
 - A) Fructose to Fructose -6-Phosphate
 - B) Fructose to Fructose -1-Phosphate
 - C) Fructose to Fructose -1,6-Phosphate
 - D) Fructose to Fructose -2,6-Phosphate
6. Exercise increases insulin sensitivity through
 - A) Upregulation of GLUT-4 receptors
 - B) Increase insulin secretion
 - C) Increaseabsorption of Glucose
 - D) Decrease absorption of Glucose
7. A healthy adult male wants to know his diabetic status since his parents have T2DM.The HbA1c level indicative of Diabetes Mellitus as per ADA criteria is
 - A) >5.7%
 - B) b>6%
 - C) >6.5%
 - D) .>6.2%
8. Ketone bodies cannot be utilized by
 - A) Skeletal Muscle
 - B) Smooth Muscle
 - C) Liver
 - D) Adipose tissue

9. The plasma sample of a 35 year old man after overnight refrigeration showed a creamy layer on top and opalescence below. The condition which is excluded is
A) Diabetes mellitus B) Alcoholism
C) Hypothyroidism D) Familial hypercholesterolemia
10. All of the following fatty acids are synthesized in our body EXCEPT
A) Palmitic Acid B) Oleic Acid C) Arachidonic Acid D) Linolenic Acid
11. Termination of pregnancy is indicated in a 35year old pregnant mother. Which eicosanoid derivative is useful in Medical termination of Pregnancy?
A) PGF₂ α B) PGI₂ C) PGH₂ D) TXA₂
12. Cyanide poisoning occurs due to
A) Inhibition of Cytochrome oxidase
B) Inhibition of Oxygen binding to hemoglobin
C) Inhibition of NADH CoQreductase
D) Uncoupling of oxidative phosphorylation
13. Secondary hyperlipidemia occurs in all the following conditions EXCEPT
A) Hypothyroidism B) Alcoholism
C) Chronic Pancreatitis D) Nephrotic syndrome
14. Skin and mucous membranes are affected in deficiency of all vitamins EXCEPT
A) Retinol B) Riboflavin C) Niacin D) Calcitriol
15. The characteristic finding in hypobetalipoproteinemia is
A) Acanthocytosis B) Orange tonsils C) Eruptivexanthomas D) Cornealarcus
16. All the following manifestations are seen in patients with pyridoxine deficiency EXCEPT
A) Skin rashes B) Peripheral neuritis
C) Convulsions in children D) Normocytic anaemia
17. Osteocalcin is a bone protein that helps in
A) Mineralization B) Demineralization C) Boneremodelling D) Matrix production
18. Bronze diabetes occurs in
A) Rheumatoid arthritis B) Hemosiderosis
C) Systemic lupus erythematosus D) Diabetes mellitus
19. Normal calcium level in blood is
A) 4-5 mg/dL B) 4-5meq/L C) 9 -11 mg/dL D) 96-106meq/L
20. In a patient with renal stones, serum calcium level was 12mg/dL and serum Inorganic phosphate was 2mg/dL. These findings are characteristic of
A) Excess Calcitonin secretion B) Vitamin D deficiency
C) Hyperparathyroidism D) Hypoparathyroidism

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[MBBS 0726]

JULY 2026

Sub. Code: 7055

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2024-2025 & 2025-2026)

FIRST PROFESSIONAL – (CBME)

PAPER I – BIOCHEMISTRY

Q.P. Code: 527055

Time: 20 Minutes

Maximum : 20 Marks

Answer All Questions

Shade the correct answer with Black or Blue ink ball point pen

SET - A

IV. Multiple Choice Questions:

(20 x 1 = 20)

1. Which organelle modifies, sorts, and packages proteins for secretion?
A) Ribosome
B) Golgi apparatus
C) Lysosome
D) Peroxisome
2. Which of the following disease is a lysosomal storage disorder?
A) Pompe's disease
B) Zellweger syndrome
C) Leber's neuropathy
D) Primary hyperoxaluria
3. A 40-year-old man who was fasting for 12 hours complaints of dizziness. On examination, he is found to be hypoglycemic. What is the primary source of glucose during the first 10–12 hours of fasting?
A) Dietary carbohydrates
B) Glycogenolysis
C) Gluconeogenesis
D) Fatty acid oxidation
4. In a case of acute pancreatitis, the enzyme increased is
A) Alkaline phosphatase
B) Acid phosphatase
C) Alanine transaminase
D) Amylase
5. Alcohol dehydrogenase (ADH) requires oxidized nicotinamide adenine dinucleotide (NAD⁺) for catalytic activity. In the reaction catalyzed by ADH, an alcohol is oxidized to an aldehyde as NAD⁺ is reduced to NADH and dissociates from the enzyme. The NAD⁺ is functioning as
A) Apoenzyme
B) Coenzyme
C) Inhibitor
D) Heterotropic effector
6. Incompetitive inhibition,
A) V_{max} is decreased, K_m is constant
B) V_{max} is remains unchanged, K_m is increased
C) Both are unchanged
D) Both are decreased
7. Essential pentosuria is due to defect in
A) HMP shunt pathway
B) Glycolysis
C) Gluconeogenesis
D) Uronic acid pathway
8. Glucose can be synthesized from all the following except
A) Acetoacetate
B) Lactate
C) Glycerol
D) Glucogenic amino acid

9. Which enzyme catalyzes the rate-limiting step in cholesterol biosynthesis?
A) HMG-CoA reductase B) Hormone-sensitive lipase
C) Lipoprotein lipase D) HMG-CoA lyase
10. Which of the following lipoproteins takes part in reverse cholesterol transport?
A) LDL B) HDL C) VLDL D) IDL
11. Which of the following is classified as an essential fatty acid?
A) Arachidonic acid B) Oleic acid
C) Linoleic acid D) Palmitic acid
12. A 2-year-old child from a low-income family presents with bowed legs and delayed milestones. On examination, the child has frontal bossing and widened wrists. Which vitamin is most likely deficient?
A) Vitamin B12 B) Vitamin D C) Vitamin A D) Vitamin K
13. A 60-year-old vegetarian woman presents with fatigue, tingling in her feet, and a smooth red tongue. Peripheral blood smear show macrocytic anemia with hypersegmented neutrophils. What is the most probable diagnosis?
A) Iron deficiency anemia B) Vitamin B12 deficiency
C) Vitamin B6 deficiency D) Vitamin B1 deficiency
14. Which vitamin is required for collagen synthesis and deficiency causes scurvy?
A) Vitamin B2 B) Vitamin C C) Vitamin E D) Vitamin D
15. A patient presents with abdominal pain, confusion, and red-colored urine that darkens on standing. Which porphyria is most likely?
A) Congenital erythropoietic porphyria B) Acute intermittent porphyria
C) Porphyria cutanea tarda D) Lead poisoning
16. Porphyria cutanea tarda (PCT) is caused by deficiency of
A) ALA synthase B) Ferrochelatase
C) Uroporphyrinogen decarboxylase D) Porphobilinogen deaminase
17. Indirect (unconjugated) bilirubin is transported in the bloodstream bound to which protein?
A) Albumin B) Hemoglobin C) Transferrin D) Fibrinogen
18. Where does the Krebs cycle take place within the cell?
A) Cytoplasm B) Mitochondria
C) Endoplasmic reticulum D) Golgi apparatus
19. Which of the following foods has the lowest glycemic index?
A) White bread B) Glucose C) Lentils D) Cornflakes
20. Which of the following is a complete protein?
A) Wheat B) Rice C) Egg D) Maize

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2024-2025 & 2025-2026)

FIRST PROFESSIONAL – (CBME)

PAPER I – BIOCHEMISTRY

Q.P. Code: 527055

Time: 20 Minutes

Maximum : 20 Marks

Answer All Questions

Shade the correct answer with Black or Blue ink ball point pen

SET - B

IV. Multiple Choice Questions:

(20 x 1 = 20)

1. A 40-year-old man who was fasting for 12 hours complaints of dizziness. On examination, he is found to be hypoglycemic. What is the primary source of glucose during the first 10–12 hours of fasting?
A) Dietary carbohydrates
B) Glycogenolysis
C) Gluconeogenesis
D) Fatty acid oxidation
2. In a case of acute pancreatitis, the enzyme increased is
A) Alkaline phosphatase
B) Acid phosphatase
C) Alanine transaminase
D) Amylase
3. Alcohol dehydrogenase (ADH) requires oxidized nicotinamide adenine dinucleotide (NAD⁺) for catalytic activity. In the reaction catalyzed by ADH, an alcohol is oxidized to an aldehyde as NAD⁺ is reduced to NADH and dissociates from the enzyme. The NAD⁺ is functioning as
A) Apoenzyme
B) Coenzyme
C) Inhibitor
D) Heterotropic effector
4. Incompetitive inhibition,
A) V_{max} is decreased, K_m is constant
B) V_{max} is remains unchanged, K_m is increased
C) Both are unchanged
D) Both are decreased
5. Essential pentosuria is due to defect in
A) HMP shunt pathway
B) Glycolysis
C) Gluconeogenesis
D) Uronic acid pathway
6. Glucose can be synthesized from all the following except
A) Acetoacetate
B) Lactate
C) Glycerol
D) Glucogenic amino acid
7. Which enzyme catalyzes the rate-limiting step in cholesterol biosynthesis?
A) HMG-CoA reductase
B) Hormone-sensitive lipase
C) Lipoprotein lipase
D) HMG-CoA lyase
8. Which of the following lipoproteins takes part in reverse cholesterol transport?
A) LDL
B) HDL
C) VLDL
D) IDL

9. Which of the following is classified as an essential fatty acid?
A) Arachidonic acid B) Oleic acid
C) Linoleic acid D) Palmitic acid
10. A 2-year-old child from a low-income family presents with bowed legs and delayed milestones. On examination, the child has frontal bossing and widened wrists. Which vitamin is most likely deficient?
A) Vitamin B12 B) Vitamin D C) Vitamin A D) Vitamin K
11. A 60-year-old vegetarian woman presents with fatigue, tingling in her feet, and a smooth red tongue. Peripheral blood smear show macrocytic anemia with hypersegmented neutrophils. What is the most probable diagnosis?
A) Iron deficiency anemia B) Vitamin B12 deficiency
C) Vitamin B6 deficiency D) Vitamin B1 deficiency
12. Which vitamin is required for collagen synthesis and deficiency causes scurvy?
A) Vitamin B2 B) Vitamin C C) Vitamin E D) Vitamin D
13. A patient presents with abdominal pain, confusion, and red-colored urine that darkens on standing. Which porphyria is most likely?
A) Congenital erythropoietic porphyria B) Acute intermittent porphyria
C) Porphyria cutanea tarda D) Lead poisoning
14. Porphyria cutanea tarda (PCT) is caused by deficiency of
A) ALA synthase B) Ferrochelatase
C) Uroporphyrinogen decarboxylase D) Porphobilinogen deaminase
15. Indirect (unconjugated) bilirubin is transported in the bloodstream bound to which protein?
A) Albumin B) Hemoglobin C) Transferrin D) Fibrinogen
16. Where does the Krebs cycle take place within the cell?
A) Cytoplasm B) Mitochondria
C) Endoplasmic reticulum D) Golgi apparatus
17. Which of the following foods has the lowest glycemic index?
A) White bread B) Glucose C) Lentils D) Cornflakes
18. Which of the following is a complete protein?
A) Wheat B) Rice C) Egg D) Maize
19. Which organelle modifies, sorts, and packages proteins for secretion?
A) Ribosome B) Golgi apparatus
C) Lysosome D) Peroxisome
20. Which of the following disease is a lysosomal storage disorder?
A) Pompe's disease B) Zellweger syndrome
C) Leber's neuropathy D) Primary hyperoxaluria

M.B.B.S. DEGREE EXAMINATION

(For the candidates admitted from the Academic Year 2024-2025 & 2025-2026)

FIRST PROFESSIONAL – (CBME)

PAPER I – BIOCHEMISTRY

Q.P. Code: 527055

Time: 20 Minutes

Maximum : 20 Marks

Answer All Questions

Shade the correct answer with Black or Blue ink ball point pen

SET - C

IV. Multiple Choice Questions:

(20 x 1 = 20)

1. A 60-year-old vegetarian woman presents with fatigue, tingling in her feet, and a smooth red tongue. Peripheral blood smear show macrocytic anemia with hypersegmented neutrophils. What is the most probable diagnosis?
A) Iron deficiency anemia
B) Vitamin B12 deficiency
C) Vitamin B6 deficiency
D) Vitamin B1 deficiency
2. Which vitamin is required for collagen synthesis and deficiency causes scurvy?
A) Vitamin B2
B) Vitamin C
C) Vitamin E
D) Vitamin D
3. A patient presents with abdominal pain, confusion, and red-colored urine that darkens on standing. Which porphyria is most likely?
A) Congenital erythropoietic porphyria
B) Acute intermittent porphyria
C) Porphyria cutanea tarda
D) Lead poisoning
4. Porphyria cutanea tarda (PCT) is caused by deficiency of
A) ALA synthase
B) Ferrochelatase
C) Uroporphyrinogen decarboxylase
D) Porphobilinogen deaminase
5. Indirect (unconjugated) bilirubin is transported in the bloodstream bound to which protein?
A) Albumin
B) Hemoglobin
C) Transferrin
D) Fibrinogen
6. Where does the Krebs cycle take place within the cell?
A) Cytoplasm
B) Mitochondria
C) Endoplasmic reticulum
D) Golgi apparatus
7. Which of the following foods has the lowest glycemic index?
A) White bread
B) Glucose
C) Lentils
D) Cornflakes
8. Which of the following is a complete protein?
A) Wheat
B) Rice
C) Egg
D) Maize
9. Which organelle modifies, sorts, and packages proteins for secretion?
A) Ribosome
B) Golgi apparatus
C) Lysosome
D) Peroxisome

...2...

10. Which of the following disease is a lysosomal storage disorder?
A) Pompe's disease
B) Zellweger syndrome
C) Leber's neuropathy
D) Primary hyperoxaluria
11. A 40-year-old man who was fasting for 12 hours complaints of dizziness. On examination, he is found to be hypoglycemic. What is the primary source of glucose during the first 10–12 hours of fasting?
A) Dietary carbohydrates
B) Glycogenolysis
C) Gluconeogenesis
D) Fatty acid oxidation
12. In a case of acute pancreatitis, the enzyme increased is
A) Alkaline phosphatase
B) Acid phosphatase
C) Alanine transaminase
D) Amylase
13. Alcohol dehydrogenase (ADH) requires oxidized nicotinamide adenine dinucleotide (NAD⁺) for catalytic activity. In the reaction catalyzed by ADH, an alcohol is oxidized to an aldehyde as NAD⁺ is reduced to NADH and dissociates from the enzyme. The NAD⁺ is functioning as
A) Apoenzyme
B) Coenzyme
C) Inhibitor
D) Heterotropic effector
14. Incompetitive inhibition,
A) V_{max} is decreased, K_m is constant
B) V_{max} is remains unchanged, K_m is increased
C) Both are unchanged
D) Both are decreased
15. Essential pentosuria is due to defect in
A) HMP shunt pathway
B) Glycolysis
C) Gluconeogenesis
D) Uronic acid pathway
16. Glucose can be synthesized from all the following except
A) Acetoacetate
B) Lactate
C) Glycerol
D) Glucogenic amino acid
17. Which enzyme catalyzes the rate-limiting step in cholesterol biosynthesis?
A) HMG-CoA reductase
B) Hormone-sensitive lipase
C) Lipoprotein lipase
D) HMG-CoA lyase
18. Which of the following lipoproteins takes part in reverse cholesterol transport?
A) LDL
B) HDL
C) VLDL
D) IDL
19. Which of the following is classified as an essential fatty acid?
A) Arachidonic acid
B) Oleic acid
C) Linoleic acid
D) Palmitic acid
20. A 2-year-old child from a low-income family presents with bowed legs and delayed milestones. On examination, the child has frontal bossing and widened wrists. Which vitamin is most likely deficient?
A) Vitamin B12
B) Vitamin D
C) Vitamin A
D) Vitamin K

9. Incompetitive inhibition,
A) V_{max} is decreased, K_m is constant
B) V_{max} remains unchanged, K_m is increased
C) Both are unchanged
D) Both are decreased
10. Essential pentosuria is due to defect in
A) HMP shunt pathway
B) Glycolysis
C) Gluconeogenesis
D) Uronic acid pathway
11. Glucose can be synthesized from all the following except
A) Acetoacetate
B) Lactate
C) Glycerol
D) Glucogenic amino acid
12. Which enzyme catalyzes the rate-limiting step in cholesterol biosynthesis?
A) HMG-CoA reductase
B) Hormone-sensitive lipase
C) Lipoprotein lipase
D) HMG-CoA lyase
13. Which of the following lipoproteins takes part in reverse cholesterol transport?
A) LDL
B) HDL
C) VLDL
D) IDL
14. Which of the following is classified as an essential fatty acid?
A) Arachidonic acid
B) Oleic acid
C) Linoleic acid
D) Palmitic acid
15. A 2-year-old child from a low-income family presents with bowed legs and delayed milestones. On examination, the child has frontal bossing and widened wrists. Which vitamin is most likely deficient?
A) Vitamin B12
B) Vitamin D
C) Vitamin A
D) Vitamin K
16. A 60-year-old vegetarian woman presents with fatigue, tingling in her feet, and a smooth red tongue. Peripheral blood smear shows macrocytic anemia with hypersegmented neutrophils. What is the most probable diagnosis?
A) Iron deficiency anemia
B) Vitamin B12 deficiency
C) Vitamin B6 deficiency
D) Vitamin B1 deficiency
17. Which vitamin is required for collagen synthesis and deficiency causes scurvy?
A) Vitamin B2
B) Vitamin C
C) Vitamin E
D) Vitamin D
18. A patient presents with abdominal pain, confusion, and red-colored urine that darkens on standing. Which porphyria is most likely?
A) Congenital erythropoietic porphyria
B) Acute intermittent porphyria
C) Porphyria cutanea tarda
D) Lead poisoning
19. Porphyria cutanea tarda (PCT) is caused by deficiency of
A) ALA synthase
B) Ferrochelatase
C) Uroporphyrinogen decarboxylase
D) Porphobilinogen deaminase
20. Indirect (unconjugated) bilirubin is transported in the bloodstream bound to which protein?
A) Albumin
B) Hemoglobin
C) Transferrin
D) Fibrinogen