

NOVEMBER - 2001

[KE 653]

Sub. Code : 4132

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper II — HUMAN PHYSIOLOGY AND  
BIOCHEMISTRY

Time - Three hours                      Maximum : 100 marks  
Two and a half hours                  Sec. A & Sec. B : 70 marks  
for Sec. A & Sec. B.                      Section C : 30 marks

Answer Sections A and B in separate Answer Books.

Answer Section C in the Answer sheet provided.

SECTION A

(HUMAN PHYSIOLOGY)

1. What is normal arterial blood pressure? Mention five factors maintaining it and a reflex relating heart rate to blood pressure and its variations. Describe the effects of two related hormones on blood pressure.

(3 + 8 + 4 = 15)

2. Write short notes on : (4 × 5 = 20)

(a) Phases of gastric secretion and factors controlling them

(b) Five hormones involving the kidney and their actions

(c) Actions of thyroid hormones and three abnormalities of their function

(d) Pregnancy tests and the principles involved.

SECTION B

(BIOCHEMISTRY)

3. Describe the Anaerobic Glycolysis of GLUCOSE. Add a note on the bioenergetics. (15)

4. Write briefly on : (4 × 5 = 20)

(a) Essential Amino acids

(b) Ketone bodies

(c) Structure and functions of DNA

(d) Ascorbic acid.

SEPTEMBER - 2002

[KH 653]

Sub. Code : 4132

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper II — HUMAN PHYSIOLOGY AND  
BIOCHEMISTRY

Time : Three hours                      Maximum : 100 marks  
Two and a half hours                  Sec. A & Sec. B : 70 marks  
for Sec. A and Sec. B                  Section C : 30 marks

Answer Sections A and B in SEPARATE Answer  
Books.

Answer Section C in the Answer Sheet provided.

SECTION A — (35 marks)

(HUMAN PHYSIOLOGY)

1. What is the normal value of Calcium in the blood? Mention the functions of calcium in the body. Discuss the role of hormones on calcium homeostasis. Add a note on Tetany. (1 + 2 + 9 + 3 = 15)

2. Write short notes on : (4 × 5 = 20)

- (a) Short term regulation of Blood Pressure
- (b) Muscles of Respiration
- (c) Water handling by the Kidney
- (d) Contraception in Females.

SECTION B — (35 marks)

(BIOCHEMISTRY)

3. Name three important vitamins which are required for proper functioning of nerves. Describe the sources, requirement, biochemical functions, deficiency manifestations of any one of them. (15)

4. Write short notes on : (4 × 5 = 20)

- (a) Inhibitors of Enzyme action
- (b) Deficiency and Excess of Fluoride
- (c) Importance of Milk in our daily diet
- (d) Normal GTT curve.

APRIL - 2003

[KI 653]

Sub. Code : 4132

SECTION B — (35 marks)

(BIOCHEMISTRY)

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper II — HUMAN PHYSIOLOGY AND  
BIOCHEMISTRY

Time : Three hours                      Maximum : 100 marks

Two and a half hours for      Sec. A & Sec. B : 70 marks

Sec. A and Sec. B                      Section C : 30 marks

Answer Sections A and B in separate Answer Books.

Answer Section C in the Answer sheet provided.

SECTION A — (35 marks)

(HUMAN PHYSIOLOGY)

1. Draw a nephron and describe the functions of each part. Explain how the kidneys regulate the volume of body fluids. (15)
2. Write short notes on : (4 × 5 = 20)
  - (a) Structure and functions of platelets
  - (b) The main regulatory mechanism of respiration in health
  - (c) Hormones which regulate blood calcium level and their actions
  - (d) Pathway for voluntary movement.

3. Describe the synthesis of urea and add a note on its regulation. (15)

4. Short notes : (4 × 5 = 20)

- (a) Vitamin K
- (b) Transfer RNA structure
- (c) Galactosemia
- (d) Essential fatty acids.

OCTOBER - 2003

[KJ 653]

Sub. Code : 4132

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper II — HUMAN PHYSIOLOGY AND  
BIOCHEMISTRY

Time : Three hours

Maximum : 100 marks

Two hours and forty minutes

for Sec. A and Sec. B

Sec. A & Sec. B : 80 marks

Twenty minutes for Sec. C

Section C : 20 marks

Answer Sections A and B in SEPARATE  
Answer Books.

Answer Section C in the Answer Sheet provided.

SECTION A

(HUMAN PHYSIOLOGY)

1. Describe the location of the Respiratory centre and the regulation of respiration. (15)
2. Write short notes on : (5 × 5 = 25)
  - (a) Blood groups.
  - (b) Hypoxia.
  - (c) GFR.
  - (d) Functions of skin.
  - (e) ECG.

SECTION B

(BIOCHEMISTRY)

3. Write an essay on vitamin D. (15)
4. Write short notes on : (5 × 5 = 25)
  - (a) Metabolic and respiratory acidosis.
  - (b) Citric acid cycle.
  - (c) Niacin.
  - (d) Electrophoresis.
  - (e) Jaundice.



FEBRUARY - 2005

[KM 653]

Sub. Code : 4132

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper II — HUMAN PHYSIOLOGY AND  
BIOCHEMISTRY

Time : Three hours

Maximum : 100 marks

Sec. A & B : Two hours and  
forty minutes

Sec. A & B : 80 marks

Sec. C : Twenty minutes

Sec. C : 20 marks

Answer Sections A and B in the SEPARATE  
Answer Book.

Answer Section C in the Answer Sheet provided.

SECTION A

(HUMAN PHYSIOLOGY)

1. Enumerate the hormones secreted by the thyroid.  
Describe the actions and regulation of secretion of  
thyroxine. (15)

2. Write short notes : (5 × 5 = 25)

- (a) Intra-pleural and intra-pulmonary pressure.
- (b) Refractory period in cardiac and skeletal  
muscle.

(c) Reticular formation.

(d) Deglutition.

(e) Plasma clearance.

SECTION B

(BIOCHEMISTRY)

3. What is the normal blood glucose level? Write an  
essay on regulation of blood sugar level. Write a note on  
glucose tolerance test. (15)

4. Write short notes on : (5 × 5 = 25)

- (a) Hypervitaminosis.
- (b) Glycosamino glycans.
- (c) Unsaturated fatty acids.
- (d) Electron transport chain.
- (e) Prostaglandins.

AUGUST - 2005

[KN 653]

Sub. Code : 4132

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper II — HUMAN PHYSIOLOGY AND  
BIOCHEMISTRY

Time : Three hours

Maximum : 100 marks

Sec. A & B : Two hours and

Sec. A & B : 80 marks

forty minutes

Sec. C : Twenty minutes

Sec. C : 20 marks

Answer Sections A and B in the SEPARATE  
Answer Book.

Answer Section C in the Answer Sheet provided.

SECTION A

(HUMAN PHYSIOLOGY)

1. Define cardiac output. Give the normal values in the different age groups. Mention the factors regulating cardiac output. Discuss any one in detail.

(1 + 2 + 2 + 10 = 15)

2. Write short notes on :

(5 × 5 = 25)

- (a) Pain pathway
- (b) Functions of salivary secretion
- (c) ABO blood group system
- (d) Chemical regulation of respiration
- (e) G.F.R.

SECTION B

(BIOCHEMISTRY)

3. Describe the glycogen metabolism. Write a note on glycogen storage disorders. (15)

4. Write short notes on :

(5 × 5 = 25)

- (a) Essential amino acids
- (b) Ketone bodies
- (c) Cerebrosides
- (d) Vitamin C
- (e) Calcium.

FEBRUARY - 2006

[KO 653]

Sub. Code : 4132

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper II — HUMAN PHYSIOLOGY AND  
BIOCHEMISTRY

Time : Three hours

Maximum : 100 marks

Sec. A & B : Two hours and  
forty minutes

Sec. A & B : 80 marks

Sec. C : Twenty minutes

Sec. C : 20 marks

Answer Sections A and B in the SEPARATE  
Answer Book.

Answer Section C in the Answer Sheet Provided.

Answer ALL questions.

### SECTION A

(HUMAN PHYSIOLOGY)

Draw diagrams wherever necessary.

1. Mention the stages of Erythropoiesis. Discuss the factors necessary for erythropoiesis.

What is the feature of RBC in iron and Vitamin B<sub>12</sub> deficiency anemia? (6 + 5 + 4)

2. Write short notes on : (5 × 5 = 25)

- (a) Factors regulating Blood Pressure.
- (b) Mechanism of sodium absorption by the proximal tubule of the nephron.
- (c) How is stomach mucosa protected from the acid?
- (d) Trace the pathway for pain.
- (e) How is CO<sub>2</sub> transported in the blood?

### SECTION B

(BIOCHEMISTRY)

1. Describe in detail the synthesis and utilisation of Ketone bodies? Name any two conditions of increased production of Ketone bodies and write about the evaluation of Keto acidosis? (15)

2. Write short notes on : (5 × 5 = 25)

- (a) 2, 3 Bisphospho glycerate (2, 3 BPG) and its importance.
- (b) Van den berg test.
- (c) Vitamin D.
- (d) Absorption and Transport of Iron.
- (e) Hyperuricemia.

**AUGUST - 2006**

**[KP 653]**

**Sub. Code : 4132**

**FIRST B.D.S. DEGREE EXAMINATION.**

**(Modified Regulations)**

**Paper II — HUMAN PHYSIOLOGY AND  
BIOCHEMISTRY**

**Time : Three hours                      Maximum : 100 marks**

**Descriptive : Two hours and  
forty minutes                      Descriptive : 80 marks**

**Objective : Twenty minutes                      Objective : 20 marks**

**Answer ALL questions.**

**Write Essays on :**

**1. What is the normal fasting blood glucose level?  
List the hormones regulating blood glucose level?  
Explain the role of insulin in regulating blood glucose?**

**(1 + 2 + 12 = 15)**

**2. Describe in detail the mechanism of clotting. (10)**

**3. Write short notes on : (3 × 5 = 15)**

**(a) Erythroblastosis foetalis**

**(b) Functions of liver**

**(c) Short term regulation of blood pressure.**

**Write Essays on :**

**4. Name the aromatic amino acids. Discuss the  
metabolism of Tyrosine and the specialised products  
formed from Tyrosine? (15)**

**5. Give an account of Beta oxidation of fatty acids  
with energetics. (10)**

**6. Write short notes on : (3 × 5 = 15)**

**(a) TCA cycle**

**(b) Creatine clearance**

**(c) Catabolism of purines.**



**AUGUST 2007**

**[KR 653]**

**Sub. Code : 4132**

**FIRST B.D.S. DEGREE EXAMINATION.**

**(Modified Regulations)**

**Paper II — HUMAN PHYSIOLOGY AND  
BIOCHEMISTRY**

**Time : Three hours**

**Maximum : 100 marks**

**Descriptive : Two hours and  
forty minutes**

**Descriptive : 80 marks**

**Objective : Twenty minutes**

**Objective : 20 marks**

**Answer Sections A and B in SEPARATE**

**Answer Books.**

**Answer ALL questions.**

**SECTION A**

**(HUMAN PHYSIOLOGY)**

1. Define Blood pressure and its normal range. What is mean Arterial pressure and pulse pressure? Explain the short and long term regulation of Blood pressure.

(3 + 2 + 10 = 15)

2. Write short notes on :

(5 × 5 = 25)

(a) Functions of platelets

(b) Functions of saliva

(c) Osmotic diuresis

(d) Hypoxia

(e) Functions of cerebellum.

**SECTION B**

**(BIOCHEMISTRY)**

3. Describe in detail the pathway of Glycolysis. Add a note on its energetics. (15)

4. Write short notes on :

(5 × 5 = 25)

(a) Maintenance of plasma calcium

(b) Transaminases

(c) Transfer RNA

(d) HDLC

(e) Phenylketonuria.

**FEBRUARY 2008**

**[KS 653]**

**Sub. Code : 4132**

**FIRST B.D.S. DEGREE EXAMINATION.**

**(Modified Regulations – III)**

**Paper II — HUMAN PHYSIOLOGY AND  
BIOCHEMISTRY**

**Q.P. Code : 544132**

**Time : Three hours                      Maximum : 100 marks**

**Descriptive : Two hours and          Descriptive : 80 marks  
forty minutes**

**Objective : Twenty minutes          Objective : 20 marks**

**Answer Sections A and B in SEPARATE Answer Books.**

**Answer ALL questions.**

**SECTION A**

**(HUMAN PHYSIOLOGY)**

**1. Define the term Erythropoiesis. Describe in detail  
the various stages of erythropoiesis. (15)**

**2. Write short notes : (5 × 5 = 25)**

**(a) Functions of basal ganglion.**

**(b) Female contraceptive devices.**

**(c) Fast muscles.**

**(d) GFR.**

**(e) Dwarfism.**

**SECTION B**

**(BIOCHEMISTRY)**

**3. Write in detail about the citric acid cycle and its  
regulation. (15)**

**4. Write short notes on : (5 × 5 = 25)**

**(a) Urea cycle**

**(b) Transaminases**

**(c) Essential fatty acids.**

**(d) Niacin.**

**(e) Fluoride.**

August 2008

[KT 653]

Sub. Code: 4132

**FIRST B.D.S DEGREE EXAMINATION  
(Modified Regulations – III)**

**Paper II – HUMAN PHYSIOLOGY AND  
BIOCHEMISTRY**

*Q.P. Code: 544132*

**Time: Three hours**

**Maximum: 100 Marks**

**Answer Section A & B in SEPARATE Answer Books.**

**ANSWER ALL QUESTIONS**

**SECTION A**

**(HUMAN PHYSIOLOGY)**

**I. Essay:**

**1 x 20 = 20 Marks**

1. Draw neatly labeled diagrams to show pathways for pain sensation from face and upper limb.

How is pain sensation modulated in the body?

What is referred pain? Explain its physiological basis with suitable examples.

Briefly explain the endogenous analgesia system.

**II. WRITE SHORT NOTES ON:**

**5 X 6 = 30 Marks**

1. Role of white blood cells in immunity.
2. Mechanism of heat loss on exposure to hot environment.
3. Digestive enzymes of pancreatic juice
4. Oral contraceptives.
5. Spermatogenesis.

**SECTION B  
(BIOCHEMISTRY)**

**I. Essay:**

**1 x 20 = 20 Marks**

1. What is the normal level of serum calcium? Elaborate on the maintenance of calcium homeostasis.

**II. WRITE SHORT NOTES ON:**

**5 X 6 = 30 Marks**

1. Scurvy.
  2. Essential fatty acids.
  3. Genetic Code.
  4. Transamination.
  5. Renal Glycosuria.
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February 2009

[KU 653]

Sub. Code : 4132

**FIRST B.D.S DEGREE EXAMINATION**

**(Modified Regulations – III)**

**Paper II – HUMAN PHYSIOLOGY AND BIOCHEMISTRY**

**Q. P. Code : 544132**

**Time : Three hours**

**Maximum: 100 Marks**

**Answer Section A & B in SEPARATE Answer Books.**

Answer ALL questions.

**SECTION – A  
(HUMAN PHYSIOLOGY)**

**I. Essays :** (1 x 20 = 20)

1. What is Erythropoiesis? Describe the stages in the development of RBC. Mention the factors for maturation of RBC and add a note on types on anemias.

**II. Write Short notes on :** (5 x 6 = 30)

1. Composition and functions of saliva.
2. Functions of liver.
3. Glomerular filtration rate.
4. Tetany .
5. Role of white blood cells in immunity.

**SECTION – B  
(BIOCHEMISTRY)**

**I. Essays :** (1 x 20 = 20)

1. Write in detail about glycogenesis and its regulation.

**II. Write Short notes on :** (5 x 6 = 30)

1. Essential aminoacids.
2. Ascorbic acid.
3. Maintenance of plasma calcium level.
4. Competitive inhibition.
5. Phospholipids.

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August 2009

[KV 653]

Sub. Code : 4132

**FIRST B.D.S DEGREE EXAMINATION**

**(Modified Regulations – III)**

**Paper II – HUMAN PHYSIOLOGY AND BIOCHEMISTRY**

**Q. P. Code : 544132**

**Time : Three hours**

**Maximum: 100 Marks**

**Answer Section A & B in SEPARATE Answer Books.**

Answer **ALL** questions.

**SECTION – A  
(HUMAN PHYSIOLOGY)**

**I. Essays :** (1 x 20 = 20)

1. Describe in detail the mechanism of clotting. Add a note on haemophilia.

**II. Write Short notes on :** (5 x 6 = 30)

1. Functions of WBC.

2. Hypothyroidism.

3. Tetany.

4. Hypoxia.

5. Glomerular filtration rate.

**SECTION – B  
(BIOCHEMISTRY)**

**I. Essays :** (1 x 20 = 20)

1. Write the chemistry, source, requirements, biochemical functions and deficiency manifestations of vitamin D. Add a note on hypervitaminosis.

**II. Write Short notes on :** (5 x 6 = 30)

1. Immunoglobulins.

2. Glucose Tolerance Test (GTT).

3. Phenylketonuria.

4. Thiamine.

5. Ascorbic acid.

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February 2010

[KW 653]

Sub. Code : 4132

**FIRST B.D.S DEGREE EXAMINATION**

**(Modified Regulations – III)**

**Paper II – HUMAN PHYSIOLOGY AND BIOCHEMISTRY**

**Q. P. Code : 544132**

**Time : Three hours**

**Maximum: 100 Marks**

**Answer Section A & B in SEPARATE Answer Books.**

Answer **ALL** questions.

**SECTION – A  
(HUMAN PHYSIOLOGY)**

**I. Essays :** (1 x 20 = 20)

1. What are the functions of thyroxine? What is the effect of hypothyroidism in children?

**II. Write Short notes on :** (5 x 6 = 30)

1. Composition and functions of blood.
2. Functions of liver.
3. Properties of cardiac muscle.
4. Hypoxias.
5. Functions of placenta.

**SECTION – B  
(BIOCHEMISTRY)**

**I. Essays :** (1 x 20 = 20)

1. What are water soluble vitamins? Discuss the chemistry, sources, functions and deficiency manifestations of ascorbic acid.

**II. Write Short notes on :** (5 x 6 = 30)

1. Essential amino acid.
2. Vitamin K.
3. Regulation of blood glucose.
4. Rickets.
5. Serum cholesterol.

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August 2010

[KX 653]

Sub. Code: 4132

**FIRST B.D.S DEGREE EXAMINATION**

**(Modified Regulations – III)**

**Paper II – HUMAN PHYSIOLOGY AND BIOCHEMISTRY**

*Q.P. Code: 544132*

**Time: Three hours**

**Maximum: 100 Marks**

**Answer Section A & B in SEPARATE Answer Books.**

**Answer ALL Questions**

**SECTION A**

**(HUMAN PHYSIOLOGY)**

**I. Essay:**

**1 x 20 = 20 Marks**

1. Enumerate the Plasma proteins giving their normal values. Describe their functions.  
Add a note on Oedema.

**II. Write Short Notes on:**

**5 x 6 = 30 Marks**

1. Functions of Cerebellum.
2. Immunological Test for Pregnancy diagnosis.
3. Pulmonary alveolar ventilations.
4. Features of diabetes mellitus.
5. Ventricular systole.

**SECTION B**

**(BIOCHEMISTRY)**

**I. Essay:**

**1 x 20 = 20 Marks**

1. How is Glucose metabolized under Aerobic and Anaerobic conditions? How much energy is generated and its regulation?

**II. Write Short Notes on:**

**5 x 6 = 30 Marks**

1. Fatty acid synthesis.
2. Liver function tests.
3. Role of bicarbonate as a buffer.
4. Enzyme inhibition.
5. Uncouplers of oxidative phosphorylation.

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February 2011

[KY 653]

Sub. Code : 4132

**FIRST B.D.S. DEGREE EXAMINATION.**

**(Modified Regulations — III)**

**Paper II — HUMAN PHYSIOLOGY AND BIOCHEMISTRY**

*Q.P. Code : 544132*

**Time : Three hours**

**Maximum : 100 marks**

Draw suitable diagrams wherever necessary.

Answer **ALL** questions.

**SECTION A  
(PHYSIOLOGY)**

**I. Essay :** **(1 x 20 = 20)**

1. Name the hormones of thyroid gland. Write the functions of thyroxine hormone. Add a note on hypothyroidism.

**II. Short notes :** **(5 x 6 = 30)**

1. Rh incompatibility.
2. Movements of small intestine.
3. What is glomerular filtration rate; how it is measured?
4. What is hypoxia? Write about different types of hypoxia with examples.
5. Define blood pressure and explain about the long term regulation of blood pressure.

**SECTION B  
(BIOCHEMISTRY)**

**I. Essay :** **(1 x 20 = 20)**

1. Describe in detail the source and fate of ammonia in the body. (Urea cycle).

**II. Write short notes on :** **(5 x 6 = 30)**

1. Substrate level phosphorylation.
  2. Isoenzymes and their importance.
  3. Ascorbic acid.
  4. Protein structure.
  5. Selenium.
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August 2011

[KZ 653]

Sub. Code : 4132

**FIRST B.D.S. DEGREE EXAMINATION**

**HUMAN PHYSIOLOGY AND BIOCHEMISTRY**

*Q. P. Code : 544132*

**Time : Three hours**

**Maximum: 100 Marks**

Answer **ALL** questions

**Answer Section A and B in Separate Answer Books**

**SECTION – A**

**(HUMAN PHYSIOLOGY)**

**I. Essay Questions:** (1 x 20 = 20)

1. Name the Respiratory centres. Explain the Neural and Chemical regulation of Respiration.

**II. Write Short notes on :** (5 x 6 = 30)

1. Functions of Blood.
2. Cardiac Output.
3. Cretinism.
4. Functions of Placenta.
5. Functions of Kidney.

**SECTION – B**

**(BIOCHEMISTRY)**

**I. Essay Questions:** (1 x 20 = 20)

1. Describe in detail the chemistry, sources, RDA, metabolic role & deficiency manifestations of folic acid in the human body.

**II. Write Short notes on :** (5 x 6 = 30)

1. Biochemical Role of Vitamin K & its deficiency manifestations.
2. Glucose tolerance test.
3. Pathway of Gluconeogenesis from amino acids.
4. Dietary fibres and their role in human nutrition.
5. Classify Mutations with examples.

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February 2012

[LA 653]

Sub. Code: 4132

**FIRST B.D.S. DEGREE EXAMINATION**  
**PAPER II – HUMAN PHYSIOLOGY AND BIOCHEMISTRY**

*Q.P. Code: 544132*

**Time : 3 hours**  
**(180 Min)**

**Maximum : 70 marks**

**Answer ALL questions in the same order**  
**Draw Suitable diagrams wherever necessary**  
**Answer Section A and B in Separate Answer Books**

**SECTION –A**  
**(HUMAN PHYSIOLOGY)**

**I. Elaborate on:** **(1 X 10 = 10)**

1. Draw diagram's to show the pain pathways from the limbs and face. Add a note on Endogenous pain inhibitory pathways.

**II. Write notes on:** **(5 x 5 = 25)**

1. Define Blood pressure, pulse pressure and Mean arterial pressure. Explain the Baroreceptor reflex with the help of a Flow chart.
2. Define Lung volumes with the help of a diagram. Give the normal values.
3. What is meant by Homeostasis? Mention basic the mechanisms that maintain homeostasis with examples.
4. Name the mechanisms involved in urinary concentration and dilution.
5. Define Ovulation. When does it occur in a 28 day menstrual cycle? Briefly write about the various tests to detect ovulation.

**SECTION –B**  
**(BIOCHEMISTRY)**

**I. Elaborate on:** **(1 X 10 = 10)**

1. Describe in detail the formation and fate of ketone bodies in the body Add a note on biochemical findings in Diabetic Ketoacidosis

**II. Write notes on:** **(5 x 5 = 25)**

1. Biochemical Role of Vitamin B12 & deficiency manifestations
2. Phenylketonuria
3. Metabolic role of Calcium & regulation of calcium homeostasis
4. Substrate level phosphorylation with examples
5. Genetic code

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