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

[MD 0524] **MAY 2024** **Sub. Code: 4014**

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

PAPER II – SYSTEMIC PHYSIOLOGY

(SYSTEM PROVIDING TRANSPORT, NUTRITION AND ENERGY)

Q.P. Code: 204014

Time : Three Hours **Maximum : 100 Marks**

I. Essay Questions: **(2 x 15 = 30)**

1. Discuss the role of liver in digestion including bile production, bile acid synthesis and bile secretion. How do bile salts aid in the emulsification and absorption of dietary fats.

2. Classify Blood groups. What is Rh factor, what is its importance in blood transfusion and add a note on Erythroblastosis fetalis.

II. Short notes: **(10 x 5 = 50)**

1. Neural Control of Respiration.
2. Heart Sounds.
3. Ventilation perfusion Ratio.
4. Non-respiratory functions of lung.
5. JVP.
6. Explain the rapid control of Arterial Blood Pressure.
7. What is Recto Anal Inhibitory Reflex and what is its physiological significance.
8. Role of platelets in Haemostasis.
9. Cytokines.
10. Dietary fibre.

III. Reasoning Out: **(4 x 5 = 20)**

1. Hyperkalaemia has a potential effect on heart – Explain.
2. Polycythaema in Obstructive sleep apnoea.
3. Cholera toxin causes diarrhoea.
4. Neutropenia occurs in Enteric fever.

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

[MD 1224] **DECEMBER 2024** **Sub. Code: 4014**

(OCTOBER 2024 EXAM SESSION)

M.D. DEGREE EXAMINATION

PHYSIOLOGY

PAPER II – SYSTEMIC PHYSIOLOGY

(SYSTEM PROVIDING TRANSPORT, NUTRITION AND ENERGY)

Q.P. Code: 204014

Time : Three Hours **Maximum : 100 Marks**

I. Essay Questions: **(2 x 15 = 30)**

1. a) Define Blood pressure.
   b) Describe the mechanism involved in long-term regulation of Blood pressure.
   c) Anthropometric factors influencing the changes in Blood pressure.

2. Describe the mechanism of concentration of Urine. Add a note on peculiarities of renal circulation.

II. Short notes: **(10 x 5 = 50)**

1. FRC.
2. Cerebral circulation.
3. Pacemaker potential.
4. GFR.
5. G Forces.
6. Law of Laplace.
7. Chemoreceptors.
8. Artificial respiration.
9. Ondine's curse.
10. Reynold's number.

III. Reasoning Out: **(4 x 5 = 20)**

1. Subendocardial blood circulation is maintained in spite of strangulation of coronary arteries during systole – How?
2. Physiological and Pathological basis of 2^{nd} and 3^{rd} heart sounds.
3. Pathological 'Q' wave – Justify it.
4. Recycling of urea in DCT and Collecting Ducts - Justify.

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

[MD 0525] **MAY 2025** **Sub. Code: 4014**

M.D. DEGREE EXAMINATION

PHYSIOLOGY

PAPER II – SYSTEMIC PHYSIOLOGY

(SYSTEM PROVIDING TRANSPORT, NUTRITION AND ENERGY)

Q.P. Code: 204014

Time : Three Hours **Maximum : 100 Marks**

I. Essay Questions: **(2 x 15 = 30)**

1. a) Describe the mechanism of Oxygen transport in blood.
   b) Describe the methods of artificial respiration.

2. Explain in detail about Phases of Cardiac Cycle. Add a note on Staircase Phenomenon.

II. Short notes: **(10 x 5 = 50)**

1. Autoregulation.
2. Proximal Tubular Events.
3. Respiratory membrane.
4. Hypoxic Hypoxia.
5. Septic shock and its pathophysiology.
6. Vital capacity.
7. Tubuloglomerular feedback.
8. Hering Breuer.
9. Phasic flow.
10. Acclimatization.

III. Reasoning Out: **(4 x 5 = 20)**

1. Nephrogenic Diabetes Insipidus.
2. Vagal tone in Athletes – Justify.
3. Panting Respiration in animals – Why?
4. Bern’s Adenosine Hypothesis.

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

[MD 1025] **OCTOBER 2025** **Sub. Code: 4014**

M.D. DEGREE EXAMINATION

PHYSIOLOGY

PAPER II – SYSTEMIC PHYSIOLOGY
(SYSTEM PROVIDING TRANSPORT, NUTRITION AND ENERGY)

Q.P. Code: 204014

Time : Three Hours **Maximum : 100 Marks**

I. Essay Questions: **(2 x 15 = 30)**

1. Define Compliance. How it is measured? Mention the factors affecting it. What is specific compliance?

2. Describe the role of Kidneys in the conservation of electrolytes and water in the ECF.

II. Short notes: **(10 x 5 = 50)**

1. What are Korotkoff's sounds and what produces them?
2. Types of Abnormal breathing.
3. Wolff – Parkinson – White syndrome.
4. List the factors that determine alveolar ventilation.
5. Oxygen hemoglobin dissociation curve.
6. Counter current mechanism.
7. Hypoxia and its types.
8. Hemorrhagic shock.
9. Measurement of cardiac output.
10. Renal function tests.

III. Reasoning Out: **(4 x 5 = 20)**

1. What is calcium rigor, and why does it occur?
2. Recirculation of urea contributes to medullary hyperosmolarity.
3. Bradycardia in athlete is physiological.
4. Osteomalacia in chronic renal failure.

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

[MD 0526] **MAY 2026** **Sub. Code: 4014**

M.D. DEGREE EXAMINATION

PHYSIOLOGY

PAPER II – SYSTEMIC PHYSIOLOGY
(SYSTEM PROVIDING TRANSPORT, NUTRITION AND ENERGY)

Q.P. Code: 204014

Time : Three Hours **Maximum : 100 Marks**

I. Essay Questions: **(2 x 15 = 30)**

1. Define Cardiac output. Explain the factors that regulate cardiac output. Methods of measurements of Cardiac output.

2. Describe the Neural and Chemical Regulation of Respiration. Add a note on Abnormal breathing.

II. Short notes: **(10 x 5 = 50)**

1. Describe the Generation and Conduction of Cardiac Impulse.
2. Tubular Maximum for Glucose (TmG).
3. Einthoven's Triangle and Einthoven's law.
4. Septic shock and its pathophysiology.
5. Renal Transplantation.
6. Functional Residual volume.
7. Surfactant.
8. Renin Angiotensin System.
9. Cystometrogram.
10. Blood Brain Barrier.

III. Reasoning Out: **(4 x 5 = 20)**

1. Increase in GFR Following a High Protein Meal.
2. Peripheral edema in Cardiac Failure.
3. Salt Restricted Diet and Diuretics in Hypertension.
4. Asthma Attacks are More Common in the Early Morning.

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