



WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 6th Semester Examination, 2023

PHYADSE04T-PHYSIOLOGY (DSE3/4)

HUMAN NUTRITION AND DIETETICS

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any five questions from the following

8×5 = 40

1. (a) What is balanced diet? 2+3+3
(b) Write a short note on "Net Protein Utilization".
(c) What are the objectives of diet survey?
2. (a) What is space food? 2+3+3
(b) Classify space food.
(c) What do you mean by positive and negative nitrogen balance?
3. (a) Describe the formulation of balance diet for lactating mother. 5+3
(b) What do you mean by biological values of proteins?
4. (a) What do you mean by Specific Dynamic Action (SDA)? Write the significance of SDA. (2+1)+1+4
(b) What is the unit of BMR?
(c) How can you determine BMR by Benedict Roth Apparatus?
5. (a) What are essential fatty acids? Give example. (2+1)+5
(b) Discuss briefly the antioxidant property of vitamin E.
6. (a) Write about the sources and daily requirement of vitamin D. (2+1)+3+2
(b) Discuss the role of vitamin D on intestinal absorption of Ca^{2+} .
(c) State the symptoms of hypervitaminosis D.
7. (a) Describe the role of leptin in obesity. 5+3
(b) Write the significance of potassium in maintenance of fluid balance.
8. (a) What do you mean by "microcytic hypochromic anemia"? 2+3+3
(b) State the role of transferrin in the transport of iron.
(c) What do you mean by the term Osteomalacia and how it is different from Ricket?

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WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 4th Semester Examination, 2023

PHYACOR08T-PHYSIOLOGY (CC8)

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

Candidates should answer in their own words and adhere to the word limit as practicable.

Answer any five questions from the following

8×5 = 40

1. (a) What is glycogenin? What role does it play in glycogenesis? (2+2)+4
(b) "Gluconeogenesis is just not the simple reversal of glycolysis."— Justify.
2. (a) Why HMP-shunt is named so? 2+3+(2+1)
(b) Discuss the oxidative steps of HMP-shunt pathway.
(c) What is Rapaport-Luebering cycle? State its physiological significance.
3. (a) State the significance of Cori cycle and glucose-alanine cycle. (2+2)+(2+2)
(b) What is deamination? How is it different from transamination?
4. (a) Write the significance of SDA. 2+3+3
(b) How is BMR determined?
(c) Define NPU, PER and RQ.
5. (a) Discuss the steps of formation of ketone bodies. 4+4
(b) Give the account of utility of ketone bodies.
6. (a) Describe the process of synthesis of mevalonate from acetyl CoA. 4+4
(b) Briefly describe the fatty acid synthase complex.
7. (a) Describe the chemiosmotic theory of oxidative phosphorylation. 4+2+2
(b) What do you mean by redox couple?
(c) Give one example of inhibitor of the respiratory chain and inhibition of oxidative phosphorylation mentioning their site of action.
8. (a) Compare CPS-I and CPS-II. 2+2+4
(b) Discuss the mitochondrial steps of urea cycle.
(c) Describe the metabolism of triglyceride in human body.

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WEST BENGAL STATE UNIVERSITY
B.Sc. Programme 5th Semester Examination, 2023-24

PHYGDSE02T-PHYSIOLOGY (DSE1)

SPORTS AND EXERCISE PHYSIOLOGY

Full Marks: 40

Time Allotted: 2 Hours

*The figures in the margin indicate full marks.
Candidates should answer in their own words
and adhere to the word limit as practicable.*

প্রান্তিক সীমার মধ্যস্থ সংখ্যাটি পূর্ণমান নির্দেশ করে।
পরীক্ষার্থীরা নিজের ভাষায় যথা সম্ভব শব্দসীমার মধ্যে
উত্তর করিবে।

Answer any five questions from the following

8×5 = 40

নিম্নলিখিত যে-কোনো পাঁচটি প্রশ্নের উত্তর দাও

5+(2+1)

1. (a) Discuss the effect of exercise on cardiovascular system.
শারীরিক প্রশিক্ষণের জন্য হৃদসংবহনতন্ত্রে সংগঠিত পরিবর্তনগুলি বর্ণনা করো।
- (b) Define static and dynamic work. Give example.
স্থিতিশীল ও গতিশীল কার্যের সংজ্ঞা দাও। উদাহরণ দাও।

2+2+4

2. (a) Define Isometric and Isokinetic work.
আইসোমেট্রিক ও আইসোকাইনেটিক কার্যের সংজ্ঞা দাও।
- (b) What is resting metabolic rate?
বিশ্রামরত বিপাকীয় হার কি ?
- (c) What do you mean by alactic acid debt and lactic acid debt?
অ্যালাকটিক অ্যাসিড ডেট এবং ল্যাকটিক অ্যাসিড ডেট বলতে কি বোঝো ?

2+4+2

3. (a) Mention the importance of regular exercise in health and wellbeing.
স্বাস্থ্য ও সুস্থতায় নিয়মিত ব্যায়ামের গুরুত্ব উল্লেখ করো।
- (b) Mention the differences between fast-twitch and slow-twitch muscle fibers.
ফাস্ট-টুইচ এবং স্লো-টুইচ পেশী তন্তুর মধ্যে পার্থক্য উল্লেখ করো।
- (c) What do you mean by phosphagen system?
ফসফাজেন সিস্টেম বলতে কি বোঝো ?

2+2+2+2

4. (a) What is doping?
ডোপিং কি ?
- (b) What do you mean by blood doping?
ব্লাড ডোপিং বলতে কি বোঝো ?

(c) Classify ergogenic aids with examples.

উদাহরণসহ আরগোজেনিক এইডস-এর শ্রেণীবিভাগ করো।

(d) What is Sarcopenia?

সারকোপেনিয়া কি ?

5. (a) What are the principles of physical training?

4+2+2

শারীরিক প্রশিক্ষণের নীতিগুলি কি কি ?

(b) What do you mean by overtraining syndrome?

অতিরিক্ত প্রশিক্ষণজনিত সিনড্রোম বলতে কি বোঝো ?

(c) What is cross-training?

ক্রস ট্রেনিং কি ?

6. (a) Explain cori cycle with diagram.

4+2+2

কোরি চক্রের চিত্রসহ বর্ণনা দাও।

(b) What is lactate threshold?

ল্যাকটেট থ্রেশোল্ড কি ?

(c) Discuss the importance of sports medicine.

স্পোর্টস মেডিসিনের গুরুত্ব লেখো।

7. Write short notes on the following:

2+3+3

নিম্নলিখিতগুলির উপর সংক্ষিপ্ত টীকা লেখোঃ

(a) Aerobic exercise and anaerobic exercise.

সবাত ব্যায়াম ও অবাত ব্যায়াম

(b) Training and detraining

ট্রেনিং এবং ডিট্রেনিং

(c) Muscle fatigue and physiological fatigue.

পেশী ক্লান্তি ও শারীরবৃত্তীয় ক্লান্তি।

8. Write short notes on the following:

3+3+2

নিম্নলিখিতগুলির উপর সংক্ষিপ্ত টীকা লেখোঃ

(a) VO₂ max

VO₂ ম্যাক্স

(b) Physical Fitness Index (PFI)

ফিজিক্যাল ফিটনেস ইনডেক্স

(c) RICE method for sports injuries.

স্পোর্টস ইনজুরিতে RICE পদ্ধতির ব্যবহার।

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WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 3rd Semester Examination, 2023-24

PHYACOR07T-PHYSIOLOGY (CC7)

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

Candidates should answer in their own words and adhere to the word limit as practicable.

All symbols are of usual significance.

Answer any five questions from the following

8×5 = 40

1. (a) What are the differences between lower and upper motor neurons? 2
 (b) Describe sensory and motor changes following hemisection of the spinal cord. 4
 (c) What is comma tract of Schultz? 2
2. (a) Draw a labelled diagram of reflex arc. 2
 (b) Explain summation and subliminal fringe in reflex action. 3+3
3. With a suitable diagram, describe the neural pathways carrying unconscious kinesthetic impulse from the periphery to the brain. 2+6
4. Write short notes on any *two* from the following: 4×2 = 8
 (a) Aphasia
 (b) Extrapyramidal system
 (c) Decerebrate rigidity
 (d) Evoked cortical potential.
5. (a) State the molecular basis of sensitization. 4
 (b) Briefly explain the distinguishing features of short-term and long-term memories. 4
6. (a) What is Ascending Reticular Activating System (ARAS)? 2
 (b) Discuss the role of ARAS in the induction of sleep. 4
 (c) What is paradoxical sleep? 2
7. (a) What is 'servo-mechanism'? 2
 (b) Describe the role of cerebellum in the regulation of balance and equilibrium. 4
 (c) What is Huntington Chorea? 2
8. (a) Write the histological structure of neocortex. 3
 (b) Describe the process of chemical transmission in a paravertebral ganglia. 5

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WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 5th Semester Examination, 2023-24

PHYACOR11T-PHYSIOLOGY (CC11)

SPECIAL SENSES

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

Candidates should answer in their own words and adhere to the word limit as practicable.

Answer any five questions from the following

8×5 =40

4+2+2

1. (a) Describe the accommodation reflex.
(b) Give an account of astigmatism.
(c) Mention the histological peculiarities of Fovea Centralis.
2. (a) Describe the histological structure of retina with the help of a labelled diagram.
(b) Discuss the procedure of perimetry for visual field determination.
3. (a) Describe electro-chemical changes in retina after exposure of light.
(b) Define critical fusion frequency and state its application.
4. (a) Describe the mechanism of transmission of sound waves from external atmosphere to cochlea.
(b) How the intensity of sound wave is discriminated by inner ear?
5. (a) What do you mean by impedance matching?
(b) What is place theory?
(c) Give an account of localization of sound.
6. (a) Describe the olfactory pathway with the help of a neat labelled diagram.
(b) Distinguish between anosmia and parosmia.
7. (a) What is gustducin?
(b) Describe the signal transduction process of bitter and sweet senses.
8. Write short notes on any **two** of the following:
(a) Colour blindness
(b) Tonic and phasic adaptation
(c) Organ of Corti
(d) Olfactory bulb.

5+3

5+(2+1)

5+3

2+2+4

6+2

2+6

4×2 = 8

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WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 3rd Semester Examination, 2023-24

PHYACOR06T-PHYSIOLOGY (CC6)

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

Answer any five questions from the following

8×5 = 40

1. (a) What do you mean by the term current of injury? 2+3+2+1
 (b) Write down the significance of QRS Complex. ST segment elevation in aut. leads (V₃, V₄)
 (c) What changes occur in ECG in myocardial infarction? concave downwards, T wave
 (d) What is idioventricular rhythm? cardiac rhythm < 50 beats/min, absence of P waves, widening of QRS complex
2. (a) Describe the changes that occur during ventricular diastole. 4+4
 (b) Describe how hypoxia controls cardiac output in our body.
3. (a) What is windkessel effect? 2+3+3
 (b) Explain Starling Hypothesis.
 (c) Draw a labelled diagram of the histological cross section of vein.
4. (a) What is the role of nucleus tractus solitarius (NTS) in blood pressure regulation? 4+2+2
 (b) What is Korotkoff sound?
 (c) What do you mean by intrinsic heart rate?
5. (a) Describe the characteristic features of coronary circulation. 5+3
 (b) Explain triple response.
6. (a) Describe the effect of negative "g" and zero gravity on cardiovascular system. (2+2)+4
 (b) Discuss about circulatory shock.
7. (a) Describe the Dye dilution technique for measuring cardiac output. 5+(2+1)
 (b) What is ejection fraction? State the factors that influence ejection fraction.
8. Write short notes on: 2+2+2+2
 - (a) Dicrotic notch
 - (b) Buffer nerves
 - (c) Reynolds number
 - (d) Standard bipolar limb leads.

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WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 5th Semester Examination, 2023-24

PHYACOR12T-PHYSIOLOGY (CC12)

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

Candidates should answer in their own words and adhere to the word limit as practicable.

Answer any five questions from the following

8×5 = 40

1. (a) Discuss the role of sodium-iodide pump in the synthesis of thyroid hormones. 3+3+2
 (b) How TSH regulates the secretion of thyroid hormones?
 (c) What is Hashimoto's thyroiditis?
2. (a) Describe the mechanism of secretion of insulin. 4+4
 (b) What are insulin like growth factors? State their importance.
3. (a) What is pheochromocytoma? 3+2+2+1
 (b) Discuss the chemical nature of mineralocorticoids.
 (c) Cortisol is a diabetogenic hormone.— Justify the statement.
 (d) What do you mean by 'ACTH independent Cushing's Syndrome'?
4. (a) What is the difference between infradian and ultradian rhythm? 2+3+3
 (b) Describe briefly the functions of melatonin.
 (c) Briefly explain the role of suprachiasmatic nuclei on biological rhythm.
5. (a) Name the source and chemical nature of PTH. 2+4+2
 (b) Discuss the role of PTH in bone remodelling.
 (c) What is Vitamin-D resistant ricket?
6. (a) Describe briefly the synthesis and storage of catecholamines. 4+4
 (b) What is the role of vasopressin in blood pressure control?
7. Write short notes on any *two* of the following: 4×2 = 8
 (a) Erythropoietin
 (b) Graves' disease
 (c) Positive feedback regulation
 (d) Hyperpituitarism.
8. (a) How growth hormone secretion is controlled? 3+2+3
 (b) What do you mean by hypothalamic-pituitary-adrenal axis?
 (c) What are synthetic steroids? Give example.

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