

রাজ্যস্বত্বের বিভিন্ন বিদ্যালয়ে সহকারী শিক্ষক-শিক্ষিকা নিয়োগের জন্য

MCQ PATTERN AS
New Syllabus 2022

তপতীর

শারীরবিদ্যা

2nd
SLST

এনসাইক্লোপিডিয়া

গ্র্যাজুয়েট (নবম-দশম)

বিশ্বদীপ মন্ডল

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স্কুল সার্ভিস কমিশনে প্রথম স্থানাধিকারী

সহশিক্ষক মেমারী V.M. Institution Unit-2

ভূতপূর্ব অতিথি অধ্যাপক মহিষাদল রাজ কলেজ,

ও সচদেবা কলেজ, প্রাক্তন সহশিক্ষক (লিয়েন) বর্ধমান রাজ কলিজিয়েট স্কুল

অতিথি শিক্ষক Pathfinder Education Centre & Mamoon

National School, প্রাক্তন অতিথি শিক্ষক আল আমিন মিশন।

মধ্যশিক্ষা অনুমোদিত দশম শ্রেণীর জীবন বিজ্ঞান ও পরিবেশ শীর্ষক Text

বই ও সহায়িকা গ্রন্থ, উচ্চমাধ্যমিক কাউন্সিল অনুমোদিত একাদশ ও দ্বাদশ

শ্রেণীর জীবন বিজ্ঞান সহায়িকা গ্রন্থ এবং জয়েন্ট পরীক্ষার্থীদের জন্য

বাংলা ও ইংরাজী মাধ্যমে Competitive Medical

Biology গ্রন্থের গ্রন্থকার।



তপতী[®] পাবলিশার্স

৯/৪ টেমার লেন, কোলকাতা-০৯



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Syllabus

1. Units of Human System: Structure function relationship of cell and its organelles and different tissues.

2. Biochemical and Biophysical Principles Involved in Human System: Definition and physiological significance of diffusion, osmosis, dialysis, ultra filtration, adsorption and absorption. Definition, classification and physiological importance of colloids. Definition and enzymes, co-enzymes and isozymes with examples. Factors influencing enzyme action.

3. Conservation of Matter and Energy in Human System: (a) **Conservation of matter and energy in human systems :** Structures in relation to functions of alimentary tract. Composition, functions and regulations of secretion of digestive juices including bile. Digestion and absorption of dietary carbohydrates, proteins and fats.

(b) **Nutrition :** Definition of balanced diet. ACU, Marasmus, Kwashiorkor, PCM, Dietary fibers, Vitamins : Definition, classification, functions deficiency symptoms and daily requirements, Hypervitaminosis.

Minerals : Dietary sources and nutritional importance.

BMR : Definition and factors affecting R. Q. : Definition, factors affecting and significance, Biological value of protein.

SDA : Definition and importance.

4. Blood : Composition and functions. Origin and functions of plasma proteins. Plasmapheresis. Bone marrow, Formed elements of blood, their formation and functions. Haemoglobin : Different types of compounds and derivatives. Blood volume and its regulation.

Coagulation of Blood : Mechanism and factors influencing, anticoagulants and disorders of coagulation, Blood groups - ABO and Rh, Thalassemia. TC, DC, Haemoglobin estimation, bleeding and clotting time. Anaemia-definition and types, Leukocytosis, Leukopenia, leukemia, purpura definitions.

5. Cardiovascular System: (a) Heart properties of cardiac muscle, Origin and propagation of cardiac impulse, various events (atrial and ventricular of cardiac cycle, heart, sounds, heart rate, cardiac output and factors affecting its regulation. (b) Circulation- Structure of arteries, arterioles, capillaries, venules and veins. Pulse - arterial and venous. Blood pressure and its regulation and factors controlling. Baro-and chemo receptors vasomotor reflexes, Methods of measurement of blood pressure.

6. Respiration System: Anatomy and histology of respiratory passage and organs. Role of respiratory muscles in respiration. Artificial respiration. Significance of anatomical and physiological dead space. Lung volumes and capacity. Exchange of respiratory gases between (i) lung and blood, and (ii) blood and tissues. Transport of O_2 and CO_2 in blood. Neural and chemical regulation of respiration. Hypoxia.

7. Renal Physiology: Structure - function relationship of kidney. Mechanism of formation of

urine and physiology6. of micturition. Acid-base regulation by the kidney. Non-excretory functions of kidney.

8. Nerve - Muscle Physiology: Structures of different types of muscles. Muscular contraction and relaxation. Isotonic and Isometric contractions. Properties of muscles, Structure and classification of nerves. Origin and propagation of nerve impulse. Velocity of impulse in different types of nerve fibres. Properties of nerve fibre.

Synapses : Structures, different types and mechanism of synaptic transmission. Myoneural junction : Structure and mechanism of impulse transmission. Degeneration and regeneration of nerve fibre.

9. Nervous System and Sensory Physiology: Definition, reflex arc, classification, properties. Functions of spinal cord. Outline of functions of brain stem. A brief idea of structure connections and functions of cerebellum. Functions of thalamus and hypothalamus. Cerebral cortex-Histological structures and localization of functions. Cerebrospinal fluid (CSF)- Composition, Formation, Circulation and functions. Functions of sympathetic and parasympathetic nervous system. Classification of general and special senses and their receptors.

Weber - Fechner law. Basic concept of receptor adaptation.

Olfaction and gustation - Structure of sensory organ, neural pathway of smell and taste sensation, mechanism of taste sensation, after taste. Olfactory adaptation.

Audition - Structure of ear, auditory pathway, mechanism of hearing, pitch perception and perception of loudness.

Vision - Structure of the eyes, histology of retina, visual pathway chemical changes of retina on exposure of light; mechanism and pathway of accommodation, error refraction, after image, light and dark adaptation elementary idea of colour vision and colour blindness.

10. Skin and Body Temperature: Structure and functions of skin, Insensible and sensible perspiration. Physiology of sweat secretion and its regulation. Regulation of body temperature.

11. Endocrine system: Anatomy of endocrine system. Classification of Hormones. Basic concept of regulation of hormone actions. Elementary idea of hormone action. Histological structure, hormones and functions pituitary, thyroid, parathyroid, adrenal and pancreas. Hypothalamic control of anterior and posterior pituitary. Hypo and hyperactive states of pituitary gland, thyroid and adrenal cortex.

Brief idea of the origin and functions of renin-angiotensin, prostaglandins, erythropoietin and melatonin. Elementary idea of gastrointestinal hormones.

12. Reproductive Physiology: Primary and accessory sex organs and secondary sex characters. Testis - Histology, spermatogenesis, testicular hormones and their functions. Ovary - Histology, Oogenesis, ovarian hormones and their functions.

Oestrus and menstrual cycles and their hormonal control.

Development of mammary gland and lactation.