**BIOCHEMISTRY - ORAL TEST PREPARATION**

Topic list & key evaluation points

| Order | Topic | Key evaluation points |
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| 1 | An important proportion of stroke is caused by blood clots. Describe the phenomenon, mechanism and intervention with respect to the coagulation. | * Description of stroke (1) * Description of mechanism of blood coagulation (2) * Describe the mechanism of coagulation in stroke and intervention (3) * Questions: (4) |
| 2 | Glucose is considered indispensable for the brain. From your biochemical perspective, please explain this phenomenon and predict some sequences in case the supply of glucose is sub-optimal or even totally discrupted. | * Overview of energy sources used by different organs (2). * Biochemistry of the brain in energy metabolism (2) * The potential health issues of the brain (2) * Questions: (4) |
| 3 | Besides serving as an energy source, polysaccharides participate in many biological structures, and thus play many other roles. Please study the case of hyaluronic acid, as an example, to demonstrate these features of polysaccharides. | * Description of polysaccharides: structure, source, classification (2). * Hyaluronic acid: structure (1), sources (1) physiological roles (1) & applications (1) * Questions: (4) |
| 4 | The Macadamia nut is thought to be good for health, mainly due to its lipid profile. How could a lipid positively or negatively impact on health? | * List of prominent lipid components of the macadamia nut (1) * Impact of lipid types from food to the body (3) * Potential impact of lipids from macadamia nut (2) * Questions: (4) |
| 5 | Influenza is a long-standing health concern. One severe disturbance caused by this infection is the cytokine storm, which is not frequently observed in other pathologies. Please describe the situation, its components & implications. | * Viral infection: mechanism, complications (1). * Cytokines: nature, sources, roles (1) * Cytokine storm: overview, key components, complications (2) * Differentiation of influenza viruses & implications (2) * Questions: (4) |
| 6 | Gout disease results from the sub-optimal metabolism of nucleic acids. Is there a common lesson from the crystals of uric acid accumulated in joints & kidney stones? | * Nucleic acid metabolism (2) * The key issues causing clinical symptoms of Gout disease (1) * The formation of kidney stones (1) * The common lession from both pathogenesis & intervention (2) * Questions: (4) |
| 7 | Alcohol is an indispensible part of many cultures. However, cases of methanol-induced toxicity have been recently reported. Please describe the situation and its implications. | * Overview of ethanol & methanol metabolisms (2) * Negative impact of these molecules on our body (2) * Clinical implications (2) * Questions: (4) |
| 8 | Bone formation is regulated strongly by histone acetylation. Please describe the molecular mechanism and biochemical aspect of this relationship & the implication. | * Histone acetylation (2) * Genes related to bone formation and regulated by histone acetylation (3) * Implications (1) * Questions: (4) |
| 9 | Proper body weight maintenance is important and fat elimination is of great interest. What is your opinion on this process from a biochemistry point of view. | * Energy metabolism (2) * Key determinants of weight gain/lost (2) * Your opinion on exercise to burn fat (2) * Questions: (4) |
| 10 | As a hormone, growth hormone (GH) strongly modulates cell biology via its target genes. Describe this hormone’s mode of action & links to its physiological/pathological roles. | * Estrogen structure & production (1) * Transcription process (2) * Target genes of estrogen (1) * Impact at body level (2) * Questions: (4) |