



ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

RESOURCES FOR
“HSC-II “ZOOLOGY”
ZUEB EXAMINATIONS 2021



PREFACE:

The ZUEB examination board acknowledges the serious problems encountered by the schools and colleges in smooth execution of the teaching and learning processes due to sudden and prolonged school closures during the covid-19 spread. The board also recognizes the health, psychological and financial issues encountered by students due to the spread of covid-19.

Considering all these problems and issues the ZUEB Board has developed these resources based on the condensed syllabus 2021 to facilitate students in learning the content through quality resource materials.

The schools and students could download these materials from www.zueb.pk to prepare their students for the high quality and standardized ZUEB examinations 2021.

The materials consist of examination syllabus with specific students learning outcomes per topic, Multiple Choice Questions (MCQs) to assess different thinking levels, Constructed Response Questions (CRQs) with possible answers, Extended Response Questions (ERQs) with possible answers and learning materials.

ACADEMIC UNIT ZUEB:

2. Constructed Response Questions (CRQs)

HOW TO ATTEMPT CRQs:

- Write the answer to each Constructed Response Question/ERQs in the space given below it.
- Use black pen/pencil to write the responses. Do not use glue or pin on the paper.

SECTION B (SHORT ANSWER QUESTIONS)

1. What is an IDE? Which two short-keys are used to compile the program?

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

S#	CRQ	ANSWER	CL	DL
1.	Why Hypothalamus is called the thermostat of the body?	Temperature of body is control by part of brain hypothalamus . It is sensitive to temperature of blood flowing through it & is set to particular temperature called set point. In humans this set point is 98.6°F . This is why it is also called thermostat of body	U	M
2.	Why do Skeletal muscles show fatigue after heavy exercise?	Muscle fatigue is a symptom that decreases your muscles' ability to perform over time. It can be associated with a state of exhaustion , often following strenuous activity or exercise. When you experience fatigue, the force behind your muscles' movements decrease, causing you to feel weaker. The energy consumption of skeletal muscle cells may increase up to 100-fold when going from rest to high-intensity exercise. This high energy demand exceeds the aerobic capacity of the muscle cells, and a large fraction of the ATP required will come from anaerobic metabolism. High-intensity exercise also leads to a rapid	R	E

		decline in contractile function known as skeletal muscle fatigue.		
3.	Why Nervous co-ordination is called the quickest way of communication within the body?	In the nervous system, nerve cells send messages electrochemically: this means that chemicals cause an electrical impulse from one cell to another. This response is targeted and short lived and very fast because electrical impulse travel very fast,	U	D
4.	How does fresh water fish regulate Osmoregulation?	Solute potential of body of fresh water fishes (Trout) is greater than surrounding environment; therefore, there is danger of loss of salts from cells and entry of water inside cells due to endosmosis. Excess water entering in body is removed by passing large quantities of very dilute urine due to low water absorption rate in kidneys. Some useful ions are lost during removal of urine but it is balance by using salt containing diet and by active uptake of salts by gills and Skin.	R	E
5.	Write a note on Lithotripsy	<i>Lithotripsy</i> The lithotripsy is used for non surgical removal of kidney stone. It is a technique used to break up stones that form in the kidney, ureter or gall bladder. <i>Method</i> There are several way to do it although the most common is shock wave lithotripsy or ultrasonic lithotripsy. High concentration X-Ray or ultrasound are directed from a machine outside the body to the stone inside. The shock waves break the stone in tiny pieces or into sand which are passed out of the body in urine	U	M
6.	Write differences between Axial and appendicular skeleton	Human skeleton system has two major components namely axial and appendicular. The major difference between axial and appendicular skeleton is that the axial has 80 bones located along the axis of the body while the appendicular has 126 bones of appendages and girdles that are connected to the axial skeleton. Consequently, the main functions of the axial skeleton are supporting the upright position and protecting the internal organs. On the other hand, the main function of the appendicular skeleton is the aiding in the movement of the body. Furthermore, the axial skeleton consists of six parts: the skull, the ossicles of the middle ear, the vertebral column, hyoid, rib cage, and the sternum while the appendicular skeleton consists of limbs and girdles.	R	E
7.	Write four functions of skeleton.	Functions of Skeleton 1. Support and Shape It provides supporting frame work of the body, it gives the body a particular shape. 2. Protection Bones protect critical internal organs, such as brain spinal cord, heart, lungs and reproductive organs. 3. Movement Skeletal muscles attached to the bones help move the body. 4. Mineral Homeostasis Bones serve as depository for calcium, phosphorus, sodium and	U	D

		potassium. Bones can release or take up minerals through negative feed back mechanisms to maintain the homeostasis.		
8.	Describe Locomotion in Amoeba	<p>. Locomotion in Amoeba</p> <p><i>Organs of Locomotion</i></p> <p>Locomotion in Amoeba is called amoeboid movement. Amoeboid movement takes place by means of Pseudopodia.</p> <p><i>Method of Locomotion</i></p> <p>The pseudopodia are finger like projections in the direction of movement. After the formation of pseudopodia the Amoeba attaches with the substratum and pull the body in the forward direction.</p> <p>The exact mechanism of pseudopodia formation is still not known</p>	R	E
9.	Name the various type of Asexual reproduction in animals with examples.	<p>(i) BINARY FISSION: Eg : euglena, paramecium, amoeba</p> <p>(ii) MULTIPLE FISSION: Example: Amoeba, Plasmodium.</p> <p>(iii) BUDDING: eg: corals and some sponges.</p> <p>.REGENERATION:</p> <p>Planaria, Earthworm.</p> <p>PARTHENOGENESIS:</p> <p>e.g. some wasp. But some animal show alternation of parthenogenesis and sexual reproduction e.g. Apid, honey bee</p>	U	M
10.	Define biotechnology also write its importance.	<p>The utilization or exploitation of living organisms or their product for the benefit and welfare of human being is called biotechnology.</p> <p>Biotechnology is most important for its implications in health and medicine. Through genetic engineering – the controlled alteration of genetic material – scientists have been able to create new medicines, including interferon for cancer patients, synthetic human growth hormone and synthetic insulin, among others. It offers medical advancement opportunities. ...</p> <p>It allows us to preserve resources. ...</p> <p>It can reduce infectious disease rates</p>	R	E
11.	State the Objections on darwin's Theory.	<p>OBJECTION TO DARWIN'S THEORY:</p> <ul style="list-style-type: none"> • Darwin's theory was so reasonable and was accepted by many biologists yet some objections were raised. • Darwin did not clearly differentiate between heritable and non heritable variations • He emphasized the role of minor variations while mutation plays an important role in evolution. 	U	D

		<ul style="list-style-type: none"> Darwin has no explanation for the presence of natural variation 		
12.	How does Hydrostatic skeleton help the earthworm in locomotion?	<p>Movement in a hydrostatic skeleton is provided by muscles that surround the coelom. The muscles in a hydrostatic skeleton contract to change the shape of the coelom; the pressure of the fluid in the coelom produces movement. For example, earthworms move by waves of muscular contractions of the skeletal muscle of the body wall hydrostatic skeleton, called peristalsis, which alternately shorten and lengthen the body. Lengthening the body extends the anterior end of the organism. Most organisms have a mechanism to fix themselves in the substrate. Shortening the muscles then draws the posterior portion of the body forward. Although a hydrostatic skeleton is well-suited to invertebrate organisms such as earthworms and some aquatic organisms, it is not an efficient skeleton for terrestrial animals</p>	R	E
13.	List out Renewable and Non-renewable resources of environment.	<p>RENEWABLE RESOURCES:</p> <ul style="list-style-type: none"> Air Water Wildlife Soil Forests <p>NON RENEWABLE RESOURCES :</p> <ul style="list-style-type: none"> Fossil fuels (oil, coal and natural gas) Metals Industrial materials. 	U	M
14.	Define neurons and write name of its types	<p>NEURONS:</p> <p>DEFINITION:</p> <p>The nervous system consist of special cells which can generate and conduct electric current are called Neurons.</p> <p>According to the function, neurons are of the three types.</p> <ol style="list-style-type: none"> Sensory Neuron Motor Neuron Inter Neuron 	R	E
15.	Write a note on Cardiac muscles	<p>1. CARDIAC MUSCLES:</p> <p>The muscles which are present only inside the wall of heart are called Cardiac Muscles.</p> <p>CHARACTERISTICS:</p> <p>These are striated muscles. They are involuntary in function and fatigueless. They contract and relax continuously in a rhythmic pattern. This rhythmic contraction called heart beat.</p>	U	M

		<p>Cardiac muscles have more mitochondria to continuous supply of energy to the tissues of heart.</p> <p>Cardiac muscles regulate by the sino atrial node (SAN) or pace maker.</p> <p>Heart is quite independent of nervous system for its contraction and heart beat is generated by the cardiac muscles itself.</p> <p>STRUCTURE:</p> <p>They are uninucleated or binucleated and branched to create a meshwork of contractile tissue hence their fibres can not be separated like that of a skeletal muscle.</p> <p>FUNCTIONS:</p> <p>The function of cardiac muscle is pump the blood</p>		
16.	Why is DNA fingerprinting performed?	<p>PRACTICAL APPLICATION OF DNA FINGERPRINTING:</p> <p>Parenthood Dispute: DNA fingerprinting help to solve the problem of paternity and maternity (father + mother) child dispute.</p> <p>Personal identification: This technology helps in the classification of different organisms.</p> <p>Immigrant dispute: it can also be used for confirming legal nationality.</p> <p>Criminal Identification: It helps in the identification of criminals. The DNA of suspect is compared with the DNA isolated from skin cells, DNA from a blood or hair left at the place of crime. Similarly DNA from a single sperm is enough to identify a suspected rapist.</p>	R	E
17.	Why abnormal musclecontraction occurs by low level of calcium ions (hypocalcemia)?	<p>Hypocalcemia causes increased neuromuscular excitability by decreasing the threshold needed for the activation of neurons. As a result, neurons become unstable and fire spontaneous action potentials that trigger the involuntary contraction of the muscles, which eventually leads to tetany</p>	U	M
18.	Why do freshwater fishes excrete dilute urine and marine fishes excrete concentrated urine?	<p>In freshwater fish. The gills actively uptake salt from the environment . Water will diffuse into the fish, so it excretes a very hypotonic (dilute) urine to expel all the excess water. A marine fish has an internal osmotic concentration lower than that of the surrounding seawater, so it tends to lose water and gain salt. It actively excretes salt out from the gills</p>	R	E
19.	Why moderate form of fever is good for health.	<p>Many components of the nonspecific and specific host response to infection are enhanced by small elevations in temperature. Perhaps more important, studies of bacterial- and viral-infected animals have shown that, in general, moderate fevers decrease morbidity and increase survival rate</p>	U	D

20.	What are the causes of eutrophication?	<p>Eutrophication is predominantly caused by</p> <ul style="list-style-type: none"> human actions due to their dependence on using nitrate and phosphate fertilizers. Agricultural practices the use of fertilizers on lawns, golf courses and other fields contribute to phosphate and nitrate nutrient accumulation sewage from cities and industrial waste water. 	U	E
21.	Why parthenogenesis is considered as semi-sexual in nature.	It is semi sexual because as per the sexual reproduction it has two gametes but according to the asexual reproduction it doesn't occur naturally by fertilization (i.e. no fertilization takes place between the two gametes to form the zygote)	U	M
22.	Why identical twins are similar but fraternal twins are not.	Fraternal twins are “dizygotic,” meaning that they developed from two different eggs fertilized by two different sperm cells, while identical twins are “monozygotic” i.e., they developed from a single fertilized egg that split	R	E