University of Baghdad
College of science
Department of Biology

Competitive exam of postgraduate studies / 2016-2017
PhD. degree / Ecology (3)

Choose the correct answer (MCQ)

Q1/Best ecological factors in Ecosystem aquatic:
a.Salinity b.Factors interference

Q2/ Changing of water temperature by:
a.Turbidity b.Water source

Q3/ The effect of water movement on living organisms due to
.a.Effects on bottom components b.Nutrient transmission

Q4/ Type of living organisms according to the effect of salinity :
a.Halophobic. b.Halophilic.

Q5/ The important of water movement to the living organisms
a.Individuals distribution. b.Removal of wastes

Q6/ Divided of lakes according to the presence of nutrients:
a. Oligo trophic. b.Eutrophic. c.Dystrophic

Q7/ Divided of Biochemical cycles:
a. Preciptation b.Different cycles. c.Gaseous cycles.

Q8/ Types of producers in fresh water:
a.Algae. b.Submerged plants.

Q9/ Fresh water consumers include:
a.Benthic organisms b.zooplankton.

Q1[illegible]resh water tertiary consumers include:
a.Agantha fish .b.Osteo-fish.

Q11/ Divition of photic zone in aquatic Ecosystem:
a.Dark layer. b.Productive photic layer. c.Mesolayer

Q12/ The relationship of oxygen and water is related directly with:
a.Decline of salinity. b.Decline of temperature. c.Decline of acidity.

Q13/ Increasing of salinity in water is related directly with:
a.Ascending of temperature. b- decline of oxygen. c- increase of acidity

Q14/ Estuaries divisions according to the principles:
a.Geomorphology b.Changing in water colum c.Estuary energy systems

Q15/ Changeable of temperature in river estuaries due to:
a.Shallow of river estuary b.Mixing between water bodies.

Q16/ High turbidity in river estuaries due to:
a.Turbidity from river. b.Turbidity which formed in estuaries. c.Turbidity from sea.

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Q17/Sources of air pollution by smoke:
a.Transportation. b.Trash and garbage.

Q18/..ollutants that cause water acidity:
a.Industrial waste and sewage water. b.The hydroxides

Q19/.Food pollutants include:
a.Heavy metal b.Parasites and bacteria.

Q20/.Famous Bacteria contaminate food:
a.Bacillus groups. b.Viberio groups.

Q21/.Famous Fungi toxins food:
a. Aphlatoxins. b.Okratoxins.

Q22/.Important pollutants (chemicals) in food:
a.Heavy metals. b.Preservatives.

Q he permitted of Pb in drinking water:
a.0.5 Mg/L. b.10Mg/L.
Q24/.The permitted limit of Hg in canning foods is :
a. 0.9 ppm. b.0.5ppm
Q25/ The most important air pollutants:
a.Radial materials. b.Dust and particles
Q26/ The Anionic detergent and cationic in water is:
a.Brome ions. b.Chrome ions
Q27/ Concentration of Bacteria in ground water is :
a.High b. Low
Q25/ Measurement methods of environmental pollutants:
a.Completcpmpound formation b.Photodensity method
Q26/ The concentration of O2 in drinking water is :
a. 0.5 Mg/L . b.2Mg/L .
Q27/ NH2 concentration in ground water is :
a.o.6 Mg/L . b.High
Q28/ The most important water pollutants:
a.Industrail wastes b.Sewage water.
Q29/ The permiited limit of air pollution by Co2 gas is :
a.315 ppm. b.325 ppm.
Q30/ Sources of H2S gas:
a.Some industries b.Volcanoes.
Q31/ Air pollution by radial particles:
a. Beta particles . b.Gamma ray .
Q32/ The permitted of Pb in drinking water:
a.0.5 Mg/L. b.10Mg/L.

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Q33/ Immigration is the permanent entry of new individuals of same species into a population from outside.
A. True B. False
Q34/---------- is the loss of heat from a liquid surface that is losing some molecules as gas
a- Conduction b- convection c- radiation d- evaporation
Q35/which of age pyramids have extremely broad base ----------
a- Pyramids have a more even distribution of age classes b-Pyramids have a large proportion of old individuals c-Pyramids with a rapidly expanding population d-All the previous e-No one of the previous
Q36/according to the exponential growth, if the size of a population is greater than carrying capacity, what will happen to the population----------
a- The population size will decrease b-The population size will increase rapidly without stopping c-The population size will increase rapidly and stopping suddenly
Q37/ Many animals avoid the burning daytime heat by foraging at night
a- True b- False
Q38/ Evaporation and convection are the most variable causes of heat loss in animal.
a. ue b. false
Q38/ A lesser-known mechanism of speciation occurs by hybridization
a- true b- false

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Q39/ Plants defense strategy includes:
a-Reach faster development, maturation, and reproduction b-To be with other plants having chemical repellants c-Having adequate amount of toxins which affect the predator and limits its nutrient reserve d-All above mentioned
Q40/ Apparent plants can escape their enemies by:
a- Escape in time. b-Escape in space. c-Escape in time and space. d-Using repellant compounds

Q41/ Digestibility reducing substances are:
a-Toxins b-Repellent materials. c-Attractant materials. d-Disrupting digestion

Q42/ Plants can escape from their adaptive enemies by:
a- Escape in time. b- Escape in space. c- Using other plant odder d- All above mentioned

Q43/ Animals can discriminate their food either by:
a- Test. b-Smell c- Sight d-All above mentioned

Q44/ Plants can protect their tissues from predators by:
a- Translocation nutrients b-Reduced water in tissues c-Increasing fiber content of the leaves
d- All above mentioned

Q45/ Toxins concentration in some plants follows the following trends:
a-Decreased with the progression of season b-Increased with the progression of the season
b- Having steady concentration c- None of all above.

Q46/ Insects are important for plants because:
a-As food b-Shelter c-Transportation d-Supply of water

Q47/ Insects are important for plants because:
a- As food. b-Shelter. c-Transportation d-Supply of water

Q48/ Feeding deterrent for insect feedings in plants evolved through:
a- Terpenoids pathway. b-Phenolic pathway. c-Alkaloid pathway. d-All above mentioned

Q49/ Food utilization efficiencies are:
a- Approximate digestibility (AD). b-Efficiency of conversion of digested food (ECD).
b- Efficiency of ingested food(ECI) c-All above mentioned

Q50/Plants defense strategy includes:
a-Reach faster development, maturation, and reproduction. b-To be with other plants having chemical repellants. c-Having adequate amount of toxins which affect the predator and limits its nutrient reserve. d-All above mentioned

Q5 Allelochemics can affect animals as follows:
a- Positively. b-Negatively c-Neutral effect. d-All above mentioned points.

Q52/ Humans used plant Allelochemics in:
a- Medication. b-Insect control. c-Weed control. c-All above mentioned.

Q53/ Adaptive animals can escape host plant toxins by:
a- Detoxifying toxins. b-Storing them. c-Using them against their enemies. d-All above mentioned.

Q54/ The fate of plant toxins in insects feeding on toxic plants is:
a- Metabolized or execrated. b-Store unchanged. c-Store metabolite. d-All above mentioned.

Q55/ Name one non-biodegradable waste which may pollute the earth to dangerous levels of toxicity, if not handled properly.
A. DDT, B. Radioactive substances C. Fungicides D. PCBs

Q56/ Which of the following is a prime health risks associated with greater UV radiation through the atmosphere due to depletion of stratospheric ozone?
A) Damage to digestive system B) Increased liver cancer C) Neurological disorder
D) Increased skin cancer

Q57/ Which of the following is not as a consequence of global warming?
A) rising sea level B) increased agricultural productivity worldwide C) worsening health effects d-increased storm frequency and intensity E) all of the above are likely results of global warming

Q58/ Which of the following two classes of pesticide are least persistent in the environment? In other words, which breaks down more quickly?
A. Chlorofluorocarbons B) Carbamates C) Chlorinated hydrocarbons D. Organophosphate

Q59/ Of the following, _____ radiation has the longest wavelength and _____ radiation has the greatest energy.
A) ultraviolet, gamma B) visible, ultraviolet C) gamma, gamma D) visible, gamma E) gamma,visible

Q60/ The presence of high coliform counts in water indicate
A) contamination by human wastes. B) phosphorus contamination. C) decreased biological oxygen demand. D) hydrocarbon contamination. E) none of the above.

Answer the following questions briefly(Short answers)

Q1/The effects of water movement on living organisms.
Q2/Classification of lakes depending on trophic level.
Q3/The side effects on nature of fresh water
Q4/ The Methods measurement of productivity in Ecosystem.
Q5/ The Factors which limited the vilosity of water currents
Q6/The living organisms at continental shelf zone .
Q7/ Classification of lakes depending on trophic level?
Q8/ The Methods measurement of productivity in EcosystemQ9/
Q9/ The Factors Effects the change of water temperature .
Q10/The classification of Estuaries.
Q11/ The effects of water movements on living organisms?

Q12/ Classification of bacteria contaminate the food.
Q13/ Classification of poisons fungi contaminate the food.
Q14/ The Important pollution of food.
Q15/ Causes of Alkalinity of water
Q16/ Sources of pollution with Nitro gene oxide
Q17/ What do we mean by population ecology?
Q18/ Classification of bacteria contaminate the food?
Q19/ The Important oil pollutants in water?
Q20/The permit ion level of Cd in drinking water?
Q21/ Consist of negative detergents in water?
Q22/Sources of air pollution with dust ?

Q23/ Define the term natural selection?
Q24/ Some animals excrete the ammonia directly, while other convert it to urea or uric acid, which are less toxic. Give the reason?
Q25/ What is the difference between migration and emigration?
Q26/ Define the term Osmoregulation?

Q27/ How apparent plants can escape their predators?
Q28/ What are the properties of toxins?
Q29/ What are the properties of digestibility reducing substances?
Q30/ What we are mean by escaping in time and space from plant natural enemies?
Q31/ Can we find animal hormones in plants?
Q32/ What are the advantages of being specialist (food specialist)?
Q33/ What we mean by "Paper factor"?
Q34/ What are the properties of toxins?
Q35/How apperant plants can escape their predators?
Q36/What did you know about source-sink relation between aphid and their host plant?

Q37/ Two major goals of "green chemistry" are? a----- and b-----
Q38/ The liver is exposed to higher toxicant levels than the other organs. Why?
Q39/What do we mean by green chemistry?
Q40/The greenhouse gases are :- 1----, 2------, 3------, 4-------

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PhD. degree / microbiology (2)

Choose the correct answer (MCQ)

Q1/ Which of the following processes does not generate ATP?
a. Photophosphorylation. **b.** the Calvin – Benson cycle. **c.** oxidative phosphorylation.
d. substrate – level phosphorylation. **e.** none of the above.

Q2/ Chemotaxis is:
a. Motile of procaryotes can respondto the gradient of attractant and repellents.
b.procaryotes speed up movement toward attractant. **c.** none of above. **d.** all the above.

Q3/ Facultative anaerobes are bacteria that can
a- Grow in the presence of molecular oxygen only b-Grow in the presence of Carbone dioxide only
c- Switch between aerobic and anaerobic respiration d-Grow in PH12

Q4/ Carotenoids in photosynthetic microorganisms used in
a- Nitrogen fixation b-Glucose hydrolysis c-Capture light energy d-Hydrogen peroxide production

Q5/ Rennin is:
a- A glycolytic enzyme. b- Proteolytic enzyme c- Degrades casein.

Q6/ ATP may:
a- Accelerate some enzyme reactions b-Deactivate some enzymes c-Has no effect on enzyme reaction.

Q7/ Kinases are:
a- Peptidase enzymes b- Dephosphorylation enzymes c-Phosphorylation enzymes.

Q8/ Zero order reaction:
a- Not depends on substrate concentration b-Affected by substrate concentration. c-There is no reaction.

Q9/The most popular method for typing of *Pseudomonas aeruginosa* is

A.antibiogram B.serotyping C.bacteriophage D.pyocin

Q10/Which of the following conditions can be caused by *Plesiomonas*?
A.Septicaemia B.Gastroenteritis C.Cellulites D.All of these

Q11/Which of the following condition is non-suppurative sequelae of Streptococcus pyogenes infections?

Q12/Which of the following properties are the characteristics of tetanospasmin?
A.It is a heat-labile protein B.It is a neurotoxin C.It can be toxoided D.All of these

Q13/The test(s) used for the assay of cholera toxin is/are
A.Radioimmunoassay B.Enzyme-linked immunosorbent assay C.Morphological changes in Chinese hamster ovary cells D.All of the above

Q14/ Stormy clot reaction is useful in identification of
A.*C tetani* B.*C botulinum* C.*C perfringens* D.*C difficile*

Q15/The bacteria which is novobiocin resistant is

A.*Staphylococcus aureus* B.*S epidermidis* C.*S saprophyticus* D.None of these

Q16/Protein A is found in cell wall of
A.coagulase-negative *staphylococci* B.*Staphylococcus aureus* C.*Micrococci* D.none of these

ne bacteria which is microaerophilic on primary isolation, is

A.*M fortuitum* B.*Mycobacterium tuberculosis* C.*M bovis* D.none of these

Q18/ Which of the following is the commonest species of Salmonella for causing zoonotic disease?

A.*S Indiana* B.*S Newport* C.*S typhimurium* D.*S enteritidis*

Q19/When heated exotoxin convert to :

a- Antitoxin b- toxoid c- toxication d- endotoxin

Q20/ True pathogen is the pathogen :

a- Possess factor for overcome immune response b- posses toxins c- posses enzymes d- all of them

Q21/ Normal flora important for body because can produce

A- vit.C b-vit E c- vit K d- vit D

Q22/ Tsst produce by :

a- Salmonella typhi b- S. pyogenes C- E. coli d- S. aureus

Q23/ Coagulase is the enzyme produce by and necessary for diagnosis :

a- S. aureus b- S. epidermidis c- S. saprophyticus d- S. haemolyticus

Q24/ Characteristic of endotoxin are

a- LPS b- heat stable c- have sugar moiety d- All of them

Q25/ Streptoccus viridians isolated from

a- teeth infection b- UTI c-GI d- upper respiratory infection

Q26/ example of non-invasive pathogen is :

a- Bordetella pertusis b- Shigella c- S. aureus d- S. pyogenes

Q27/ Pandemic infection means :

a- Disease in small area b- disease in specific time in small area c- disease in large area d- diseae in specific country

Q28/ Type 1 pili found in :

a- S. aureus b- E. coli c –Enterobacter d- Proteus

Q29/ IgA found on the:

a- mucosal surfaces b- Plasma cells surface c- B cells surface d- K cells surfaces

Q30/ Colostrums (mothers milk for new born) is rich in:

a- IgM b- IgG c- IgA d- digestive enzymes.

Q31/Complement has

a- classical pathway when activated only b- Two different pathways c- Three different pathways d- one pathway always

Q32/Precipitation is a reaction between

a- particulate antigen and antibody b- infected cell and antibodies c- IgD and parasite c- soluble antigen and specific antibody

Q33/ Neutralization is a reaction between

a- bacteria and antibody b- virus and specific antibody d- parasites and lymphocytes c- soluble antigen and antibody

Q34/ The histocompatibility genes are needed to

a- stimulate immune response b- activate macrophage c- control and regulate immune response Suppress immune response

Q35/ Epitopes are

a- antibodies b- heptan c- binding site on antigen surface d- binding site on antibody surface

Q36/Heptan lack the

a- immunogenicity b- antigen binging site c- regulation function d- immune proteins needed for activation

Q37/ All immune cells are born in

a- thymus b- lymphoid organs c- bone marrow d- thymus and bone marrow

Q38/Kupffer cells are phagocytic cells in

a- liver b- lung c- brain d- bones

Q39/Primary lympoid organs include

a- thymus and bone marrow b- thymus and lymph nodes c- lymph nodes and bone marrow e- bone marrow and spleen

Q40/Interferon is a cytokine that gives resistance to

a- viral infection b- Bacterial infection c- autoimmune diseases d- Parasitic infection

Q41/The human immunodeficiency virus interacts with one of the following cell-surface molecules to gain entry into cells of the immune system:

a. CD4 b. CD19 c. CD40 ligand d. CD8

Q42/ All of the following are true about antibodies, EXCEPT which one?

a-They occur on the surface of B-lymphocyte b-They are glycoproteins.

c-They predominate the primary immune response to antigen. d-They are molecule with a single, defined amino acid sequence

Q43/Antigens are usually :

a- lipids b- Proteins c- Polysaccharides

Q44/IgM :

a- can pass placenta b- may induce hypersensitivity c- is the early immune response.

Q45/hapten to be immunogen needs:

a- polysaccharide b-adjuvants c- carrier d-nothing

Q46/The complementarity determining regions:

a- Are restricted to light chains. b- Are in the constant part of the Ig molecule.

c- Bind to Fc receptors. d- Are concerned in antigen recognition

Q47/ Interferons:

a- Are found only in mammalian species. b-Induce enzyme synthesis in the target cell.

c- Only affect infected cells. d- Are specific for viruses

Q48/ The first immunoglobulin heavy chain class to be expressed on the surface of a newly produced B-cell is:

a- IgM b- IgA c- IgE d- IgG

Q49/ Epitope:

a- part of T-cell b-part of antibody c-part of Ag d- all

Q50/ Complement has

a- classical pathway when activated only b- Two different pathways c- Three different pathways

d- one pathway always

Q51/ Neutralization is a reaction between

a- bacteria and antibody b- virus and specific antibody d- parasites and lymphocytes

c- soluble antigen and antibody

Q52/ Epitopes are

a- antibodies b- heptan c- binding site on antigen surface d- binding site on antibody surface

Q53/ Heptan lack the

a- immunogenicity b- antigen binging site c- regulation function d- immune proteins needed for activation

Q54/ Primary lympoid organs include

a- thymus and bone marrow b- thymus and lymph nodes c- lymph nodes and bone marrow

d- bone marrow and spleen

Q55/ Production of cheese is

a-Modrin fermentation b-Classical fermentation c- Both of them

Q56/Abiotic stress tolerace include

a-Drough b-Calinity c-Herbicides

Q57/Which substrate is used in the fermentation of citric acid?

a.Beet molasses b.Sucrose c.Starch hydrolysate d.All of these

Q58/Vinegar production consists of

a-aerobic fermentation b.anaerobic fermentation c.aerobic fermentation followed by anaerobic fermentation d.anaerobic fermentation followed by aerobic fermentation

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Q59/Thymin dimer is mean:

a- T=T in same strand b- T=T in opposite strand c- T=T unwind strands

Q60/The regulation of gene expression in eukaryotes called:

b- Dicistronic b- monocistronic c- Polycistronic

Answer the following questions briefly (short answers)

Q1/ Archaea are insensitive to penicillin's?
Q2/ Explain briefly the sporulation?

Q3/ what is the relationship between enzymes and metal ions?
Q4/ give the function of oxidoreductase?

Q5/What is hemolytic uremic syndrome (HUS)?
Q6/Does past infection with Yersinia make a person immune?
Q7/Mention two bacteria can cause meningitis?
Q8/ Mention the importance of pyrogenic toxin ?
Q9/ What are the main symptoms of tetanus?
Q10/ What is shigellosis?
Q11/ What are the forms of plgue?
Q12/ What is the agent of primary a typical pneumonia?
Q13/---------- IS the pathogen caused disease when immune response suppress
Q14/ LD50 MEANS ----------
Q15/ BACTERIAL WHICH POSSES ----------CAN ADHERE TO HOST TISSUE
Q16/ TYPES OF FLAGELLA ARE ----------,----------
Q17/ TRUE PATHOGEN DEFINE ----------
Q18/ TRAVELLRS DIARRHOEA CAUSED BY ----------
Q19/ TETANUS TOXIN PRODUCED BY ----------
Q20/ TSST TOXIN PRODUCED BY ----------

Q21/What do we mean by agglutination reaction?
Q22/ What is the main role of Major histocompatibility complex in immune response?
Q23/ Define: cytokine
Q24/Define superantigen with examples.
Q25/ Mention the gradual steps of phagocytosis.
Q26/ What is the first barrier of immune response?
Q27/ What are the main characteristics in any vaccine to be suitable for human use?
Q28/ Why do usually prefer to use rabbits as experimental animal model in immunological experiments
Q29/ Define heterophile antigen
Q30/ list the polymorph nuclear cell?
Q31/ Write main steps in phagocytosis?
Q32/ What is the main immunological function of langerhans cells ?
Q33/ What do we mean by immunological anergy?
Q34/ why some vaccines should not be given to new born before one year of age?
Q35/ Compare between IgG and IgM?
Q36/ list all T cells types

Q37/Give reason for production of food allergic?
Q38/What are the disadvantages of biotechnology?

Q39/Discus: RNA molecules are usually much shorter than DNA?
Q40/Why okazaki fregments are formed during replication of DNA?