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4152

2807M096

Candidate's Seat No : _____

B.Sc. Sem.-6 Examination

CC - 307

Bio-Technology

Time : 2-00 Hours]

July 2021

[Max. Marks : 50

- Instructions: 1. Attempt any 3 questions from Section - I.
2. Question - 9 in Section - II is compulsory.

Section - I

1. (A) Explain Koch's postulates and write significance in studying infectious disease. 07
(B) Describe strategies used to prevent transmission of air-borne infections. 07
2. (A) Describe molecular mechanism of pathogenesis citing suitable examples. 07
(B) Define epidemiology and explain its role in Prevention and Control of disease. 07
3. (A) Write a note on Western-blotting and give its applications in disease diagnosis. 07
(B) How Bioinformatics and Molecular genetics help diagnosing human cancer? 07
4. (A) Describe the principle of ELISA and its applications. 07
(B) Discuss medicinal importance of therapeutic proteins with suitable examples. 07
5. (A) What are stem cells? Describe its types, sources and therapeutic applications in detail. 07
(B) Explain principles of Recombinant and DNA vaccines. 07
6. (A) Explain principle of enzyme replacement therapy with relevant example. 07
(B) Define monoclonal antibody and give its medicinal importance. 07
7. (A) Define Bioterrorism. Explain human pathogens misused for Bioterrorism and global threats giving examples. 07
(B) Describe pathogenesis of AIDS virus and challenges posed in its control. 07
8. (A) Discuss causes and symptoms of Cystic fibrosis. 07
(B) Write short note on pathogenesis of cancer. 07

Section - II

9. Answer the questions (Any Eight) 8

Q-1 which of the following is NOT an exception to Koch's postulate?

- A Some microorganisms cause several diseases.
- B Some diseases are caused by several microorganisms.
- C Microorganisms must be isolated from patients and cultured.
- D None of the above

Q-2 Which of the following can act as endotoxin?

- A Hyaluronidase
- B Collagenases
- C Lipopolysaccharide
- D Lipase

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- Q-3 Endotoxins are released by
- A Gram positive Bacteria
 - B Gram negative bacteria
 - C Gram positive and Gram negative both
 - D None of the above
- Q-4 In an epidemiological study, the 1st case which comes to the attention of the investigator is
- A Reference case
 - B Index case
 - C Primary case
 - D Secondary case
- Q-5 Mostly Exotoxins are-
- A Lipopolysaccharide
 - B Proteins
 - C Carbohydrates
 - D Lipids
- Q-6 which of the following may not be a potential agent for Bioterrorism?
- A Anthrax
 - B Botulin toxin
 - C Brucella Species
 - D Streptococcus pyrogens
- Q-7 Which of the following is a pathogen that could not be identified by the original Koch's postulates?
- A Staphylococcus aureus
 - B Pseudomonas aeruginosa
 - C Human immunodeficiency virus
 - D Salmonella enterica serovar Typhimurium
- Q-8 Which of the following choices lists the steps of pathogenesis in the correct order?
- A invasion, infection, adhesion, exposure
 - B exposure, adhesion, invasion, infection
 - C adhesion, exposure, infection, invasion
 - D disease, infection, exposure, invasion

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Q-9 Which of the following pathogens undergoes antigenic variation to avoid immune defenses?

- A Candida
- B Cryptococcus
- C Plasmodium
- D Giardia

Q-10 Anthrax toxin is composed of -

- A Two proteins
- B Three proteins
- C Four proteins
- D Five proteins

Q-11 Diphtheria toxin is an example of-

- A Neurotoxin
- B Exotoxin
- C Cytotoxin
- D None of the above

Q-12 Which of the following is a superantigen causing toxic shock syndrome

- A Streptococcus toxins
- B Staphylococcus toxin
- C Botulin toxin
- D Anthrax toxin

Q-13 Which of the following disease does not spread by infectious droplets-

- A Rubella
- B Typhoid
- C Covid-19
- D Influenza

Q-14 1918 Spanish Flu (1918) was caused by

- A H1N1 influenza A virus
- B SARS coronavirus 2
- C Influenza C virus
- D Simian virus 5

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- Q-15 Perinatal transmission is-
- A Bird to human
 - B Bats to human
 - C Mother to infant
 - D Cow to human
- Q-16 Separation of charged molecules in presence of electric current is known as-
- A Electrophoresis
 - B colony hybridization
 - C In situ hybridization
 - D ELISA
- Q-17 In sandwich ELISA technique microtiter plate is coated with-
- A Nonspecific antibodies
 - B Monoclonal Antibodies
 - C Monoclonal Antigen
 - D Polyclonal Antibodies
- Q-18 Western Blotting is used for-
- A Detection of specific DNA
 - B Detection of specific RNA
 - C Detection of specific protein
 - D Detection of specific ribosome
- Q-19 In Humans Major histocompatibility complex is known as-
- A Humanized MHC
 - B Homo MHC
 - C HLA
 - D MHC
- Q-20 RFLP is used for-
- A Identify single gene disease
 - B construct QTL maps
 - C construct linkage maps
 - D all of the above
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