2021

BIOCHEMISTRY — GENERAL

Paper : DSE-B-1

(Molecular Basis of Infectious Diseases)

Full Marks : 50

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer ***any five*** questions: 2×5

(a) What do you mean by opportunistic pathogen? Give one example.

(b) What is the difference between Gram-positive and Gram-negative bacteria?

(c) Differentiate between pathogenicity and virulence.

(d) What is super-antigen?

(e) What is the difference between antigenic shift and antigenic drift?

(f) Name one each of food-borne and water-borne diseases. Write the scientific name of causative agents.

(g) Name two viral diseases that are transmitted via the air-borne route transmission.

(h) What is the difference between an ectoparasite and an endoparasite?

(i) Name an antibacterial drug, explaining its mode of action.

(j) Explain with an example the difference between a vector and a fomite.

2. Answer ***any two*** questions:

(a) Differentiate between endotoxin and exotoxin. What is a toxoid vaccine? Name the causative agent for Diptheria. 3+1+1

(b) What is meant by Latent TB and Active TB? Briefly describe the strategies employed by bacteria for evading or surviving host defense mechanisms? 2+3

(c) What is the causative agent for AIDS? Why are AIDS patients susceptible to opportunistic pathogenic infection? 2+3

(d) Define source and reservoir. Name one intestinal disease caused by protozoa with their mode of action. 2+(l+2)

Answer ***any three*** questions.

3. (a) What are the two types of vaccine used for prevention of polio?

(b) Name the drug that is primarily used to treat malarial infection. Briefly describe how the malarial parasite has become resistant to that drug.

(c) Name one viral disease that causes inflammation of the brain in mammals. How can you prevent the disease from occurring? 3+(l+3)+(l+2)

4. (a) Name the viruses that are responsible for causing viral hepatitis.
(b) What is paralytic poliomyelitis?
(c) Name the causative agent of typhoid. What are the signs and symptoms of the disease?
(d) Name one infectious disease that can be caused by both bacteria as well as virus with different symptoms. Write down the scientific name of the bacteria that causes the disease. 2+2+(l+2)+(l+2)

5. (a) Name the causative agent for tuberculosis (TB). How is tuberculosis diagnosed?
(b) Name the vaccine used to prevent tuberculosis. Name the four drugs that are used in DOTS therapy for TB.
(c) Mention the diseases against which the combined vaccine DTaP is used. (l+2)+(l+3)+3

6. (a) How is AIDS transmitted and diagnosed?
(b) Briefly write down the mode of action of the drugs used for the treatment of AIDS patients.
(c) Which viruses cause influenza? What is Hib vaccine used for? (2+2)+3+(l+2)

7. (a) Briefly describe the strategies employed by bacteria for evading or surviving host defense mechanisms.
(b) Describe the four main types of infectious disease transmission and give examples of each.
(c) Name the causative agent for Candidiasis. What is aspergillosis? 3+(2+2)+(l+2)

8. (a) Name the three species of protozoa that cause malaria in humans. Which one of these species is responsible for causing malignancy?
(b) Which microorganism is responsible for causing Chikungunya? How does the disease spread? What are the possible ways by which you can restrict the spread of the disease?
(c) Mention the ways to control the spread of dengue. (1½+½)+(l+3+2)+2

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