Infectious Diseases Practice Quiz and Exercises ANSWERS

General Questions

1. What are infectious diseases usually transmitted by?
   Droplet transmission  Direct contact: e.g. via faeces.
   Indirect contact: e.g. via food.
   Vectors: carried by an insect or animal.
   Nosocomial

2. Who first discovered microscopically small organisms?
   Anton van Leeuwenhoek

3. What are prokaryotes. Which organisms belong to prokaryotes?
   Prokaryotic, unicellular organisms that DO NOT require living tissue to survive. Bacteria.

4. What is the principal difference between animal and bacterial cells?
   Membrane bound organelles and a cell wall.

5. What does pathogenic mean?
   Pathogen causing microbe

6. How can you identify bacteria?
   Microscope

7. Give 3 ways bacteria can cause damage to the host organism?
   Invasive/ destructive ENZYMES, endo- or exo- TOXINS

9. How do bacteria multiply?
   BINARY FISSION

10. How do bacteria last through adverse periods of time?
    Spore formation

11. In which respect are viruses different from bacteria?
    OBLIGATE intracellular PARASITES - need LIVING host for survival & replication: makes culturing very difficult!
    They are NOT cells but consist of either a strand of RNA or DNA in a hard protein coat – capsid.

12. Why is it difficult to find medication, which can control viruses?
    They HIDE inside the host cells
    They do NOT have a METABOLISM of their own – hence anti-microbial agents cannot be targeted towards enzymes.
    They do NOT have many STRUCTRES of their own
    Able to MUTATE – this allows them to change their surface antigens and avoid the host immune response.
13. What are Mycoplasmas?
Genus of bacteria lacking a cell wall making them difficult to treat. They are parasitic or saprotrophic (live on decomposing organic material).

14. Name three beneficial uses of fungi?
Biodegradation or in the production of various foods, beverages, antibiotics and enzymes.

15. What are protozoa? Name one example.
Eukaryotic organisms. Exist as single cells. Have NO cell wall.

16. What does the term helminth mean?
Are parasitic worms.
Eukaryotic organisms.
Multi-celled.

17. What does epidemic mean?
A pathogen causing a state of disease in a group.

18. Explain the term vector.
Intermediate carrier, transporting pathogens from reservoir to host.

19. What does virulence mean?
Degree of pathogenicity of a specific microbe.

20. Name two methods to sterilise something.
Hot air: 30 min at 180oC
Autoclaving (steam): 20 min at 120oC.
Bleach

21. What are notifiable diseases?
Diseases that are required by law to be reported to government authorities.

22. What is the incubation period?
Time interval between the initial exposure to the infecting organism and the appearance of the first sign or symptom it causes.

23. Name 4 signs of local infection.
Pain
Swelling
Redness
Warmth
Purulent exudate with bacterial infection

24. Name 4 systemic signs of infection.
Fever (high body temperature with possibly chills)
Fatigue
Weakness
Headache
Nausea
When you think of an infectious disease please always try to remember what kind of organism causes the disease – Bacterium, virus etc.

Pathology

1. Which is the causative microbe for Erysipelas?
Bacterial - *Staphylococcus aureus*
2. Which is the causative microbe for Impetigo? What is the main symptom?
Bacterial - *Staphylococcus aureus*
3. What might recurrent oral thrush indicate?
immune compromised
4. Explain the difference between HIV and AIDS.
HIV - Human immunodeficiency virus (HIV): an STI which attacks the immune system. AIDS - Acquired Immune Deficiency Syndrome: Describes the LATER stages of HIV when the immune system is severely impaired
5. Why HIV is called a “retrovirus”?
an RNA virus
6. Which cell type does HIV mainly attack?
T-helper cells / T-Lymphocytes / CD4 cells
7. Why can an HIV antibody blood test be unreliable?
delay in the appearance of HIV antibodies
8. Why do HIV antibodies not eliminate the virus?
Mutates in the viral envelope
9. Name 5 major symptoms of AIDS.
Neutropenia, thrombocytopenia
Fatigue
Anaemia
Anorexia, diarrhoea, cachexia
Neurological disease with no other cause
Peripheral neuropathy
Dementia
Cognitive / motor dysfunction
10. What are possible complications of diphtheria?
Can damage the heart muscle (causing heart failure) or paralyse breathing muscles, necrotic membrane can form deeper inside throat, blocking airways.
11. Typical symptoms for Shigellosis?
Severe diarrhoea, often with mucous, blood and pus, stomach pain, nausea and / or vomiting, fever
12. Name 4 typical symptoms of scarlet fever.
Sore throat, fever, scarlet rash (blanches under pressure, unlike meningitis spots), strawberry tongue (pale coating with red spots), general illness signs
13. What are the prodromal symptoms of whooping cough?
Starts like a cold (1-2 weeks), then a cough which does not respond to usual cough medication.
14. A possible complication of Chlamydial infection?
PID
15. What is the transmission mode of measles?
Droplet
Spread to other glands e.g. pancreas, CNS meningitis. After puberty 30% of affected males get testicular inflammation – sterility
17. What is the danger of a rubella infection?
Abnormal foetal development (birth defects) & can cause miscarriage & foetal death
18. When are patients with chicken pox infectious?
a day or two before the rash appears and until the rash is completely dry and scabbed over, about five to six days after onset of the rash.
19. What complications do you have to fear when you have acute viral hepatitis?
Chronic hepatitis, cirrhosis, liver cancer
20. Name two possible treatments for herpes simplex?
Aciclovir, pessaries
21. What is herpes zoster?
Virus
22. How is malaria transmitted?
Vector transmission – mosquito
23. Typical symptoms of malaria?
CYCLICAL FEVER, First chills, then fever for several hours followed by extreme sweating, shivering, headache, fever, malaise, arthralgia, nausea, vomiting, diarrhoea, anaemia (haemolysis), haemoglobinuria and convulsions
24. Name 2 main features of primary syphilis?
hard, painless ulcer (chancre) on the infection point (genitals, mouth) - heals completely within 4 weeks of appearance & becomes asymptomatic except lymphadenopathy.
25. How is gonorrhoea treated?
antibiotic
26. What are the complications of gonorrhoea in females?
PID, salpingitis, infertility