

A

Name:

Group:

EHA code:

SIMPLE CHOICE

1. **Brucella** is transmitted by all, **EXCEPT**:

- A aerosol transmission
- B ingestion of raw milk
- C human to human
- D contact with aborted fetuses

2. Which virulence factor is responsible for the intracellular spread of *Listeria monocytogenes*?

- A ActA
- B CagA
- C Yop
- D pertactin

3. Which of the following biochemical reactions is characteristic of *Pseudomonas aeruginosa*?

- A production of pyocyanin
- B oxidative utilization of glucose
- C oxidase production
- D all of these
- E none of these

4. Which one of the following organisms infecting gastrointestinal tract is the most frequent cause of bacteremia?

- A *Shigella flexneri*
- B *Campylobacter jejuni*
- C *Vibrio cholerae*
- D *Salmonella typhi*
- E *Salmonella typhimurium*

5. Which animal or insect is an important reservoir for *Francisella tularensis*?

- A deer
- B fleas
- C birds
- D rabbit
- E bullock

6. Which statement about Yops produced by *Yersinia pestis* is correct?

- A They gain access to human cells via the type 3 secretion system, interfere with signalling pathways and thereby inhibit phagocytosis.
- B They inactivate elongation factor-2 and block protein synthesis.
- C They function as superantigenic toxins, and trigger an over-stimulated immune response.
- D They stimulate the formation of plasmin, which in turn leads to destruction of extracellular matrix proteins leading to enhanced tissue invasion.
- E They increase adenylate cyclase activity

7. Which is the causative agent of *ulcus serpens corneae*?

- A *Staphylococcus aureus*
- B *Streptococcus pyogenes*
- C *Neisseria meningitidis*
- D *Streptococcus pneumoniae*
- E *Staphylococcus epidermidis*

8. Which test can be used for the identification of *Streptococcus pneumoniae*?

- A bacitracin susceptibility
- B bile solubility
- C catalase
- D coagulase
- E oxidase

9. Traveller's disease can be caused by...

- A ETEC
- B EPEC
- C EIEC
- D UPEC
- E EHEC

10. What is the cardinal manifestation of human brucellosis?

- A vomiting and diarrhea
- B a pseudomembrane in the throat
- C a fluctuating pattern of fever
- D peeling of the skin on the palms and soles
- E a cough that lasts for months

11. Which one of the following statements explains the relationship between carditis and infection with group A β -hemolytic streptococci?

- A Streptococcal antigens bind to IgE on the surface of heart tissue and histamine is released
- B Streptococci are polyclonal activators of B cells
- C Streptococcal antigens induce the production of antibodies which are crossreactive with heart tissue
- D Streptococci are ingested by neutrophils that release proteases that damage heart tissue
- E the disease is based on the deposition of streptococcal-specific immunocomplexes

12. Which statement regarding *Yersinia pseudotuberculosis* is correct?

- A It can cause kidney tuberculosis.
- B It can cause mesenteric lymphadenitis.
- C It can cause glomerulonephritis.
- D It can cause necrotizing pneumonia.
- E It can cause ecthyma gangrenosum.

13. *Streptococcus pneumoniae* can escape phagocytic clearance by which mechanism?

- A inhibition of phagosome/lysosome fusion
- B capsule-mediated inhibition of phagocytosis
- C inhibition of opsonisation mediated by protein
- D lysis of phagosome and replication in cytoplasm
- E replication in fused phagosome/lysosome

14. The therapy of the patient who got seriously injured but had never been vaccinated against tetanus is...

- A only toxoid
- B tetanus toxin alone
- C antitoxin and tetanus toxoid
- D antitoxin alone
- E antibiotics alone

15. Which of the following bacterial species is most commonly associated with sepsis?

- A *Campylobacter coli*
- B *Campylobacter fetus*
- C *Campylobacter jejuni*
- D *Campylobacter upsaliensis*
- E *Helicobacter pylori*

16. Which product of *S. aureus* can cause TSS?

- A exfoliative toxin
- B erythrogen toxin
- C TSS toxin and enterotoxin B, C
- D leukocidin
- E α toxin

17. *Shigellae*...

- A are Gram-positive, non-capsulated, non-flagellated, non-motile rods.
- B are Gram-negative, non-capsulated, non-flagellated, non-motile rods.
- C are Gram-negative, encapsulated, non-flagellated, non-motile rods.
- D are Gram-positive, non-capsulated, flagellated, motile rods.
- E none of these

18. Which medium is used for cultivation of *Bordetella pertussis*?

- A Mueller tellurite
- B Loewenstein-Jensen
- C Holman
- D Loeffler
- E Bordet-Gengou

19. Satellite phenomenon on blood agar is characteristic for:

- A *Chlamydia trachomatis*
- B *Pseudomonas aeruginosa*
- C *Haemophilus influenzae*
- D *Helicobacter pylori*
- E *Mycobacterium smegmatis*

20. Members of the *Streptococcus viridans* group have been most commonly associated with which disease?

- A gastroenteritis
- B meningitis
- C subacute endocarditis
- D septic arthritis
- E osteomyelitis

21. Which antibiotic drug is consistently active against anaerobic Gram-negative rods?

- A metronidazole
- B cephalosporin
- C imipenem
- D carbenicillin
- E penicillin

22. What is the causative agent of the Waterhouse-Friderichsen syndrome?

- A GAS
- B *Staphylococcus aureus*
- C *Neisseria meningitidis*
- D *Clostridium tetani*
- E *Streptococcus pneumoniae*

23. What is the causative agent of the brazilian purpuric fever?

- A *H. influenzae*
- B *H. aegyptus*
- C *H. ducreyi*
- D *T. carateum*
- E *L. biflexa*

24. Hib vaccine contains...

- A killed organism
- B attenuated organism
- C the protein capsule of the bacterium
- D the carbohydrate capsule of the bacterium conjugated with protein
- E filamentous haemagglutinin

25. Which statement is NOT correct regarding *Corynebacterium diphtheriae*?

- A Its toxin production can be detected by Elek's test.
- B Toxoid vaccine is available to prevent the disease.
- C The volutin granules can be stained by Neisser's method.
- D It is Gram negative, club shaped rod.
- E It can be cultured on Mueller tellurite agar.

MULTIPLE CHOICE

- A 1., 2., 3. options are correct
- B 1., 3. options are correct
- C 2., 4. options are correct
- D 4. option is correct
- E all of the options are correct

26. Spreading of *B. pertussis* occurs by...

- 1. direct contact
- 2. sexual route
- 3. contaminated food
- 4. droplets

27. What is characteristic for *Clostridium perfringens*?

- 1. it is Gram-positive
- 2. it produces cardiotoxic toxin
- 3. it is obligate anaerob
- 4. it causes double haemolysis

28. Diseases caused by *Streptococcus pyogenes*:

- 1. Ritter disease
- 2. scarlet fever
- 3. dysentery
- 4. rheumatic fever

29. Clinical forms of anthrax is/are...

- 1. cutaneous
- 2. gastrointestinal
- 3. pulmonary
- 4. none of these

30. Which of the followings are Gram positive rods?

- 1. Bacteroides
- 2. Prevotella
- 3. Porphyromonas
- 4. Actinomyces

31. What is characteristic for *Escherichia coli*?

1. urease positive
2. indole positive
3. phosphatase positive
4. methylred positive

32. Which of the following is correct regarding the Ipa (Invasion plasmid antigen) proteins of *Shigellae*?

1. Ipa proteins are secreted via the type III secretion system
2. Ipa proteins are pore-forming toxins and cause lysis of macrophages
3. Ipa proteins induce pyroptosis of macrophages
4. Ipa proteins are toxins inhibiting cellular protein synthesis

33. Cell wall-bound virulence factors of *S. aureus*:

1. protein A
2. clumping factor
3. slime, capsule
4. α toxin

34. Which medium is used for the cultivation of anaerobic bacteria?

1. Löwenstein-Jensen medium
2. Holman medium
3. Eosin-methylene blue medium
4. Thioglycollate medium

35. Which of the following statements is true regarding the emetic form of *Bacillus cereus* infection?

1. short incubation period (1-6 h)
2. it is caused by a heat sensitive toxin
3. intoxication
4. bacteria can be isolated from the feces

36. Which one is characteristic for *Borrelia burgdorferi*?

1. it is not culturable
2. it has endoflagellae
3. it is Gram-positive
4. it spreads by ticks

37. Which diagnostic method is used for the detection of leptospirosis?

1. microscopic agglutination test
2. Weil-Felix test
3. ELISA
4. Elek test

38. Specific serological test(s) used in the diagnosis of syphilis:

1. VDRL
2. *T. pallidum* haemagglutination test
3. RPR
4. Nelson test

39. Disease(s) caused by *Haemophilus influenzae* b:

1. epiglottitis
2. cellulitis
3. meningitis
4. arthritis

40. Complication(s) of whooping cough in childhood:

1. hypoxia
2. apnoe
3. cramps
4. encephalopathy

41. What are the causative agents of gas gangrene?

1. *Clostridium perfringens*
2. *Clostridium septicum*
3. *Clostridium novyi*
4. *Clostridium difficile*

42. What are the important virulence factors of *Helicobacter pylori*?

1. urease enzyme
2. cag A
3. vacA
4. enterotoxins

43. What is characteristic for the lethal toxin produced by *B. anthracis*?

1. it is nontoxic individually
2. it is a calmodulin-dependent adenylate-cyclase
3. it is cleaved by MAPK
4. it increases the intracellular cAMP level

44. Disease(s) caused by *Neisseria gonorrhoeae*:

1. gastritis
2. perihepatitis
3. enteritis
4. PID

45. Which of the following biological reactions is related to carbohydrate metabolism?

1. metabolism of lactose
2. metabolism of glucose
3. metabolism of saccharose
4. methyl red test

ANALYSIS OF RELATION

A= both parts of the statement are true, there is correlation between them

B= both parts of the statement are true, but they do not correlate

C= first part of the statement is true on its own, the second part is false

D= first part of the statement is false, the second part is true on its own

E=both parts of the statement are false

46. **Shigellae are very active biochemically, BECAUSE these bacteria can break down lactose.**
47. **We can acquire *Neisseria gonorrhoeae* infection using a contaminated toilet, BECAUSE the bacterium has LOS.**
48. ***Escherichia coli* strains never cause diarrhoea, BECAUSE *E. coli* bacteria are the members of the normal bacterial flora of the large intestine.**
49. **The enterotoxin of *Staphylococcus aureus* can cause toxic shock syndrome, BECAUSE enterotoxins are cytolytic toxins.**
50. **Certain bacteria (e.g. *Proteus*) will not form isolated colonies on solid media, BECAUSE the cells spread all over on the surface due to their ability to swarm.**