

Time Allowed: 30 min

Solved by Usama Arif Sheikh

R# 48

Name: [scribble]

Roll No: [scribble]

Date: [scribble]

Instructions:

- All objective questions are to be attempted on the paper and returned to the invigilator within specified time after you have received the question paper.
- Any cuttings or overwriting in answering the objective part will not be accepted and no marks will be given even if the answer is correct.

- A patient with a peptic ulcer was admitted to the hospital and a gastric biopsy was performed. The tissue was cultured on chocolate agar incubated in a microaerophilic environment at 37°C for 5 to 7 days. At 5 days of incubation curved, Gram negative oxidase-positive rods appeared. The most likely identity of this organism is
 - Campylobacter jejuni
 - Vibrio parahaemolyticus
 - Haemophilus influenzae
 - Helicobacter pylori
 - Vibrio cholera
- Leprosy (Hansen's disease) caused by Mycobacterium leprae is a worldwide disease, predominately common in Asia and Africa. The clinical spectrum of Hansen's disease is best characterized by:
 - Immunologic anergy
 - Chronic pneumonitis
 - Peripheral neuritis
 - Bacilli in lesions that digest tissues
 - Erythematous lesion resembling concentric circles
- At a church dinner, the following meal was served: baked beans, ham, coleslaw, eclairs, and coffee. Of the 30 people who attended, 4 senior citizens became ill in 3 days; 1 eventually died. Two weeks after attending the church dinner, a 19-year-old girl gave birth to a baby who rapidly became ill with meningitis and died in 5 days. Microbiologic analysis revealed no growth in the baked beans, ham, or coffee; many Gram-positive short, rod-shaped bacteria in the coleslaw. The most likely cause of this outbreak is
 - Staphylococcus aureus
 - Listeria
 - Clostridium perfringens
 - Clostridium botulinum
 - Nonmicrobiologic
- A 21-year-old college student complained of malaise, low-grade fever, and a harsh cough, but not of muscle aches and pains. An x-ray revealed a diffuse interstitial pneumonia in the left lobes of the lung. The WBC count was normal. The student has been ill for a week. A DNA probe to the 16S ribosomal RNA of an organism revealed lack of cell wall. Based on the information given, the most likely diagnosis is
 - Mycoplasma pneumoniae *No cell wall*
 - Pneumococcal pneumonia
 - Staphylococcal pneumonia
 - Influenza
 - Legionellosis
- Pathogenic mechanisms involved in tuberculosis can be primarily attributed to which of the following?
 - Toxin production by the mycobacteria
 - Specific cell adhesion sites
 - Cell-mediated hypersensitivity
 - Humoral immunity
 - Clogging of alveoli by large numbers of acid-fast mycobacteria

SS1-1130

6. A 30-year-old male patient was seen by the emergency service and reported a 2-week history of a persistent ulcer on his penis. He noted that this ulcer did not hurt. He was suspected to have developed chancres. Which one of the following actions is most valid?
- Draw blood for a herpes antibody test
 - Perform a dark-field examination of the lesion
 - Prescribe acyclovir for primary genital herpes
 - Even if treated, the lesion will remain for months
 - Failure to treat the patient will have no untoward effect, as this is a self-limiting infection
7. A patient was hospitalized after an automobile accident. The wounds became infected and the patient was treated with tobramycin, carbenicillin, and clindamycin. Five days after antibiotic therapy was initiated, the patient developed severe diarrhea and pseudomembranous enterocolitis. Antibiotic-associated diarrhea and the more serious pseudomembranous enterocolitis can be caused by
- Clostridium sordellii*
 - Clostridium perfringens*
 - Clostridium difficile*
 - Staph aureus*
 - Bacteroides fragilis*
8. A patient complained to his dentist about a draining lesion and sinuses in his mouth. A Gram's stain of the pus showed leukocytes and many branched filamentous Gram-positive rods. The most likely cause of the disease is:
- Actinomyces israelii*
 - Actinomyces viscosus*
 - Corynebacterium diphtheriae*
 - Propionibacterium acnes*
 - Staph aureus*
9. Fever of unknown origin in a farmer who raises goats most likely be caused by which of the following organisms?
- Brucella melitensis*
 - Clostridium*
 - Treponema pallidum*
 - Histoplasma capsulatum*
 - Mycobacterium tuberculosis*
10. Cholera is a toxigenic dysenteric disease common in many parts of the world. In the treatment of patients who have cholera, the use of a drug that inhibits adenylate cyclase would be expected to:
- Kill the patient immediately
 - Eradicate the organism
 - Increase fluid secretion
 - Reduce intestinal motility
 - Block the action of cholera toxin
11. A box of chicken sandwiches with mayonnaise prepared by a person with a nail on his neck was left out of the refrigerator for the on-call doctor. These doctors became suddenly ill approximately 2 h after eating the sandwiches. The most likely cause is:
- Staph aureus* enterotoxin
 - Coagulase from *S. aureus* in the chicken
 - Staph aureus* leukocidin
 - Clostridium perfringens* toxin
 - Bacillus cereus*
12. A 70-year-old female patient was readmitted to a local hospital with fever and chills following cardiac surgery at a major teaching institution. Blood cultures were taken and a Gram-positive coccus grew from the blood cultures within 24 hours. It was found to be Lancefield group B on serotyping. The most likely identification is:
- Streptococcus pneumoniae*
 - Neisseria*
 - Group A streptococcus
 - Enterococcus*
 - Group B streptococcus

13. A 30-year-old menstruating woman appeared in the emergency room with the following signs and symptoms: temperature, 104°F (40°C); WBC, 16,000/μL; blood pressure, 90/65 mmHg; a rash on her trunk, palms, and soles; extreme fatigue; vomiting; and diarrhea. The patient described in the case above most likely has:
- Scalded skin syndrome by Staph aureus
 - Toxic shock syndrome by Staph aureus
 - Gullain-Barré syndrome
 - Chickenpox
 - Staphylococcal food poisoning
14. A 2-year-old infant is brought to the emergency room with hemolytic uremic syndrome and thrombocytopenia. Which one of the following bacteria would most likely be isolated from a stool specimen?
- Shigella
 - Salmonella
 - Aeromonas
 - E. coli O157/H7
 - Enterobacter
15. E. coli causes disease by a variety of different methods. Which one of the following E. coli types is characterized by the presence of LT (heat-labile) and ST (heat-stable) proteins?
- Enteroinvasive (EIEC)
 - Enterotoxigenic (ETEC)
 - Enterohemorrhagic (EHEC)
 - Enteropathogenic (EPEC)
 - Enterohemolytic (EHEEC)
16. Recently, there have been sensational media reports of patients infected with invasive, "flesh-eating" bacteria that spread rapidly through the tissues. This organism is a beta hemolytic Streptococci. This necrotizing fasciitis is usually caused by:
- Staph aureus
 - Streptococcus pyogenes
 - Micrococcus
 - Bacillus cereus
 - Clostridium tetani
17. If a quellung test or capsular swelling test was done on the following bacterial isolates, which one would you expect to be positive?
- Streptococcus pneumoniae
 - Enterobacter
 - Haemophilus parainfluenzae
 - Staph aureus
 - Streptococcus pyogenes
18. Bacteria cause disease in a number of ways. One mechanism of pathogenesis is the secretion of potent protein toxins. All the following diseases are caused by microbial protein toxins. Which one of the following toxin has been used for treatment of writer's cramp?
- Tetanus toxin
 - Botulism toxin
 - Bacillary (Shigella) dysentery
 - Diphtheria toxin
 - Disseminated intravascular coagulation
19. The most common portal of entry for Clostridium tetani, the cause of tetanus, is the:
- Skin
 - Gastrointestinal tract
 - Respiratory tract
 - Genital tract
 - Nasal tract

20. A person who developed signs and symptoms of gonorrhoea is most likely to have acquired it via the:

- a. Skin
- b. Gastrointestinal tract
- c. Respiratory tract
- d. Genital tract
- e. Nasal tract

21. *Vibrio cholerae*, the causative agent of cholera, is best isolated using which culture media:

- a. Sheep blood agar
- b. Löffler's medium
- c. Thayer-Martin agar
- d. Thiosulfate citrate bile salts sucrose medium (TCBS)
- e. Löwenstein-Jensen medium (LJ)

22. Which one of the following is an important virulence factor of *Bacillus anthracis*?

- a. Protective antigen & edema factor
- b. Lipopolysaccharide
- c. Pili
- d. A toxin that inhibits peptide chain elongation factor EF-2
- e. Lecithinase

23. A young man sustains major soft tissue injury and open fractures of his right leg after a motorcycle accident. One day later, he has a temperature of 38°C, increased heart rate, sweating and restlessness. On examination, the leg is swollen and tense, with thin, dark serous fluid draining from the wounds. The skin of the leg is cool, pale, white, and shining. Crepitus can be felt in the leg. *Clostridium perfringens* was thought to be responsible for gas gangrene. Which of the following is likely to be responsible for his condition?

- a. Elongation factor
- b. Tetanospasmin
- c. Lecithinase
- d. Streptolysin O
- e. Toxic shock syndrome toxin

24. An 8-year-old boy, who recently arrived in the United States, develops a severe sore throat. On examination, a grayish exudate (pseudomembrane) is seen over the tonsils and pharynx. The differential diagnosis of severe pharyngitis such as this includes group A streptococcal infection, Epstein-Barr virus (EBV) infection, *Neisseria gonorrhoeae* pharyngitis, and diphtheria. The cause of the boy's pharyngitis is most likely:

- a. A gram-negative bacillus
- b. A single-stranded positive-sense RNA virus
- c. A catalase-positive, gram-positive coccus that grows in clusters
- d. A club-shaped gram-positive bacillus having Chinese letter appearance
- e. A double-stranded RNA virus

25. A 16-year-old bone marrow transplant patient has a central venous line that has been in place for 2 weeks. He also has a urinary tract catheter, which has been in place for 2 weeks as well. He develops fever while his white blood cell count is very low and before the transplant has engrafted. Three blood cultures are done which all revealed gram positive, catalase positive and coagulase negative bacteria. Which one of the following is the causative agent?

- a. *Staphylococcus epidermidis*
- b. *Staphylococcus aureus*
- c. *Staphylococcus saprophyticus*
- d. Enterococci
- e. *Streptococcus viridans*

7-year-old woman is admitted to the hospital because of fever, with increasing anorexia, headache, weakness, and altered mental status of 2 days' duration. She works for an airline as a cabin attendant. Ten days before admission, she had a diarrheal illness that lasted for about 36 hours. She has been constipated for the past 3 days. Her temperature is 39°C, heart rate is 68 beats/min, blood pressure is 120/80 mm Hg, and respirations are 18 breaths/min. She knows who she is and where she is but does not know the date. Rose spots are seen on her trunk. The rest of physical examination is normal. Blood cultures are done. The most likely cause of her illness is:

- a. Enterotoxigenic Escherichia coli (ETEC)
- b. Shigella sonnei
- c. Salmonella Typhimurium
- d. Salmonella Typhi
- e. Enteroinvasive Escherichia coli (EIEC)

27. A 55-year-old homeless man with alcoholism presents with severe multilobar pneumonia. He requires intubation and mechanical ventilation. A Gram stain of his sputum reveals numerous neutrophils and gram-negative rods that appear to have a capsule. The organism is a lactose fermenter on MacConkey agar and is very mucoid and is non-motile. What is the most likely organism causing this man's illness?

- a. Hemophilus influenzae
- b. Enterobacter aerogenes
- c. Proteus mirabilis
- d. Klebsiella pneumoniae
- e. Mycoplasma pneumonia

28. A 4-year-old boy from Kansas City who recently started attending daycare is brought to his pediatrician for a diarrheal illness characterized by fever to 38.2°C, severe lower abdominal pain, and initially watery diarrhea that became blood-tinged after 24 hours of illness. The mother reports that two other children who attend the same daycare have recently had diarrheal disease, one of whom likewise had bloody stools. Which of the following is the most likely pathogen causing the illness in these children?

- a. An entero-toxigenic strain of Escherichia coli
- b. Salmonella Typhi
- c. Shigella
- d. Bacillus
- e. Klebsiella

29. A young woman presents with recurrent urinary tract infections caused by the same Proteus strain. What is the major concern?

- a. She does not take her medication
- b. She is pregnant because pregnant patients are more susceptible to UTIs
- c. She has a bladder or kidney stone
- d. Her partner is infected
- e. She has occult diabetes

30. A 17-year-old girl with cystic fibrosis has a slight increase in her frequent cough and production of mucoid sputum. A sputum specimen is obtained and plated on routine culture media. The predominant growths are Gram-negative bacilli that form very mucoid colonies after 48 hours of incubation. These bacilli are oxidase positive, grow at 42°C, and have a grape-like odor. These Gram-negative bacilli are which of the following?

- a. Klebsiella pneumonia
- b. Pseudomonas aeruginosa
- c. Staphylococcus aureus
- d. Streptococcus pneumonia
- e. Mycobacterium tuberculosis

Azra Nadeed Medical College, Lahore

Pathology Department 3rd Year MBBS (MCQs)

Total Marks: 15

Time: 15 Minutes

1

A 40-year-old woman had laparoscopic surgery 3 months ago. Now she has a small 0.5 cm nodule beneath the skin at the incision site that was sutured. Which of the following cell types is most likely to be most characteristic of the inflammatory response in this situation?

- a) Mast Cell
- b) Eosinophil
- X c) Giant Cell
- ✓ d) Neutrophil
- e) Plasma Cell

2. A 56-year-old man has had increasing dyspnea for 6 years. He has no cough or fever. He had chronic exposure to inhalation of silica dust for many years in his job. A chest x-ray now shows increased interstitial markings and parenchymal 1 to 3 cm solid nodules. His pulmonary problems are most likely to be mediated through which of the following inflammatory processes?

- a) Neutrophilic infiltrates producing leukotrienes
- b) Foreign body giant cell formation
- c) Plasma cell synthesis of immunoglobulins
- d) Mast cell histamine release
- e) Macrophage elaboration of cytokines

3. A 43-year-old woman has had a chronic cough with fever and weight loss for the past month. A chest radiograph reveals multiple nodules from 1 to 1 cm in size, some of which demonstrate cavitation in the upper lobes. A sputum sample reveals the presence of acid fast bacilli. Which of the following cells is the most important in the development her lung lesions?

- a) Macrophage ✓
- b) Fibroblast
- c) Neutrophil
- d) Mast cell
- e) Platelets

4. A preformed mediator of inflammation is:

- a) Prostaglandins
- b) Histamine
- c) Leukotriene
- d) Nitric oxide
- e) Platelet activating factor

Not confirmed

5. An episode of marked chest pain lasting 4 hours brings a 51-year-old man to the emergency room. He is found to have an elevated serum creatine kinase. An angiogram reveals a complete blockage of the left circumflex artery 2 cm from its origin. Which of the following substances would you most expect to be elaborated around the region of tissue damage in the next 3 days as an initial response to promote healing?

- a) Histamine
- b) Immunoglobulin G
- c) Complement component C3b
- d) Leukotriene B₄
- e) Vascular endothelial growth factor

6. A 94-year-old woman has developed a fever and cough over the past 2 days. Staphylococcus aureus is cultured from her sputum. She receives a course of antibiotic therapy. Two weeks later, she no longer has a productive cough, but she still has a fever. A chest radiograph reveals a 3 cm rounded density in the right lower lobe whose liquefied contents form a central air-fluid level. There are no surrounding infiltrates. Which of the following is the best description for this outcome of her pneumonia?

- a) Hypertrophic scar
- b) Abscess formation
- c) Bronchogenic carcinoma
- d) Chronic inflammation
- e) Granulomatous cavitation

7. An inflammatory process that has continued for 3 months includes the transformation of tissue macrophages to epithelioid cells. There are also lymphocytes present. Over time, fibroblasts lay down collagen as the focus of inflammation heals. These events are most likely to occur as an inflammatory response to which of the following infectious agents?

- a) *Mycobacterium tuberculosis*
- b) *Pseudomonas aeruginosa*
- c) Cytomegalovirus
- d) *Giardia lamblia*
- e) *Treponema pallidum*

8. Which of the events in acute inflammation comes fourth?

- a) Transient vasoconstriction
- b) Vasodilatation
- c) Margination
- d) Adhesion
- e) Emigration

Pharmacology & Therapeutics

Topics: ANS & Blood

Max Marks: 45

Time Allowed: 1 hour

- ✓ Enumerate indirectly acting cholinergic drugs. 60 4
- ✓ Write down treatment of organophosphate poisoning. - Atropine, Pralidoxime. 3
- ✓ Give therapeutic classification of anti cholinergic drugs. 69 3.5
- ✓ Enumerate uses & adverse effect of Atropine. Notes 3.5
- ✓ Give difference between heparin and warfarin. 3.5
- ✓ Write down mechanism of action of Aspirin as antiplatelet drug. 3.5
- ✓ Write short notes on:
 - ✓ Pilocarpine ✓ Ganglion blockers ✓ Streptokinase ✓ Abciximab (3.5+3.5+3.5+3.5)
- ✓ Explain MOA of Statin 5
- ✓ Enumerate antihyperlipidemic drugs. 5
- ✓ a. Enumerate their Adverse Effects? 4
- ✓ b. Give bacterial spectrum of Macrolides? 2
- ✓ b. Describe Adverse Effects of Chloramphenicol & Sulfonamides? 5

Hyperkalemia
Apnea

→ Give pain following
nerve pain following
by herpes zoster) Gabapentin is
also an anti convulsant.