

3 Ana Tabbat M. Rizwan (14)

1. In the fall of 2001, Gram positive Bacillus anthracis survived even disinfection of the wards. Depending upon the O<sub>2</sub> requirements of bacteria, where do you put this bacteria?

- a. **Strict aerobic**
- b. Strict anaerobe
- c. Facultative
- d. Carboxiphilic
- e. Microaerophilic

F17-129  
M. Rizwan

Prob 2018  
MCOS  
Pathology

5. Gram staining of urine sample of a patient suspected to have urinary tract infection revealed Gram negative rods. Which of the following structure is found in gram negative bacteria but not in gram positive bacteria?

- a. Capsule
- b. Cell wall
- c. Cytoplasmic membrane
- d. Ribosomes
- e. **Outer membrane**

6. Extra chromosomal double stranded circular DNA molecules that independently of bacterial chromosomes and responsible for the transmitting bacterial resistance genes is:

- a. Mesosomes
- b. Transposons
- c. Nucleoids
- d. **Plasmids**
- e. Spores

7. Bacterial pili may enhance virulence of bacterial pathogens by:

- a. Transporting nutrients
- b. **Providing a means of attachment**
- c. Increasing the surface area of bacteria.
- d. Being an endotoxin
- e. By acting as an exotoxin

8. Which of the following phases of growth curve would most likely be missing detectable growth, but having vigorous metabolic activity?

- a. **Lag phase**
- b. Log phase
- c. Stationary phase
- d. Death phase
- e. Decline phase

Vigorous  
metabolic  
activity

17  
14

9. The ability to use compounds and ions other than oxygen as terminal oxidants in respiration is a widespread trait used by facultative bacteria to grow in the absence of oxygen. This capacity is called as:
- Photosynthesis
  - Fermentation**
  - Anaerobic respiration
  - Substrate phosphorylation
  - Nitrogen fixation
10. Laboratory results of a clinical specimen from a patient with hospital-acquired pneumonia revealed the presence of methicillin-resistant Staphylococcus aureus (MRSA). Which of the following drugs is the best empiric treatment?
- Ceftazidime
  - Dicloxacillin
  - Penicillin
  - Tobramycin
  - Vancomycin**
11. A patient diagnosed with meningitis revealed Neisseria meningitides on enriched media. Chocolate agar is an example of enriched medium used for culturing of:
- Bacteria that grow on simple media
  - Fastidious bacteria**
  - Non fastidious bacteria
  - Wall less bacteria
  - Obligate intracellular parasites
12. Media containing sugar had to be sterilized in the laboratory. Regarding the methods of sterilization using moist heat, tyndallization is:
- Boiling at  $100^{\circ}\text{C}$
  - Boiling at  $121^{\circ}\text{C}$
  - Similar to autoclaving
  - Best method of sterilization
  - Intermittent steaming at  $100^{\circ}\text{C}$  for 3 days**



13. An increase in antibiotic resistance has been observed in microbial strains isolated from patients in medical centers. Direct transfer of a plasmid between two bacteria is defined as which of the following?

- a. Competence
- b. Conjugation
- c. Recombination
- d. Transduction
- e. Transformation

Conjugation

14. Which method is used for the sterilization of heart lung machines and prosthetic heart valves?

- a. Formaldehyde
- b. Ethylene oxide gas
- c. Autoclaving
- d. Filtration
- e. Gamma radiations

15. Gram staining of a positive blood culture revealed Gram positive cocci. *Staphylococcus aureus* was suspected to be the causative agent. Which of the following test is required to differentiate *Staphylococcus aureus* from *Staphylococcus epidermidis*?

- a. Oxidase
- b. Catalase
- c. Coagulase
- d. Protease
- e. Indole

16. Seven days ago, a 27 year old medical student returned from Central America, where she had spent the summer working in a clinic. Four days ago, she developed an erythematous sunburn-like rash. She also has had headache, muscle aches, and abdominal cramps with diarrhea. Her blood pressure is 70/40 mm Hg. Pelvic examination shows she is having her menstrual period with a tampon in place; otherwise, the pelvic examination is normal. Her kidney function tests (serum urea nitrogen and creatinine) are abnormal, indicating mild renal failure. Her illness is likely to be caused by which of the following?

- a. S. aureus
- b. *S. epidermidis*
- c. *Str. Saprophyticus*
- d. *Str. Agalactiae*
- e. Enterococci

S. Aureus

A young female presented with signs and symptoms of urinary tract infection. Urine culture revealed Gram positive cocci, showing catalase and coagulase test negative. Which test distinguishes *S. epidermidis* from *Staph saprophiticus*?

- a. Catalase test
- b. Optochin sensitivity test
- c. Coagulase test
- d. DNase test.
- e. **Novobiocin sensitivity test**

18. A patient presented with pseudomembranes in the throat leading to respiratory distress. The organism obtained was a Gram positive rod with metachromatic granules. Name the causative agent.

- a. *Nocardia*
- b. *Actinomyces israelii*
- c. *Bacillus anthracis*
- d. ***Corynebacterium diphtheriae***
- e. *Listeria monocytogenes*

19. An immune-compromised chronic diabetic patient had to go for amputation of his foot after he developed gas gangrene. The organism isolated from the pus was a gram positive rod with a zone of hemolysis on blood agar and positive Nagler's reaction. Pick the causative agent.

- a. *Clostridium difficile*
- b. *Corynebacterium diphtheriae*
- c. ***Clostridium perfringens***
- d. *Clostridium botulinum*
- e. *Bacillus anthracis*

↳ Clostridium →  
↳ Perfringens →

20. A shepherd presented to the dermatology department with painless ulcer with black eschar on his hand. He had history of trauma a few days back. Which of the following Gram positive rods also used for bio-terrorism is the most likely causative agent?

- a. ***Bacillus anthracis***
- b. *Clostridium tetani*
- c. *Bacillus cereus*
- d. *Clostridium perfringens*
- e. *Corynebacterium diphtheriae*

21. A pre-mature baby boy developed meningitis one week after birth. Mother had history of ingestion of unpasteurized milk and cheese. Gram staining of CSF revealed L-shaped Gram positive rods having tumbling motility. What is the most likely causative agent?

- a. *Neisseria meningitidis*
- b. *Streptococcus pneumoniae*
- c. ***Listeria monocytogenes***
- d. *Streptococcus agalactiae*
- e. *E. coli*

A middle-aged man with pus through sinus tracts. presence of hard, lobulate  
a. *Nocardia*  
b. *Actinomyces*  
c. *Bacillus*



revealed

A middle aged man developed hard, non-tender swelling at the angle of mandible, having draining pus through sinus tracts. Pus from draining sinus revealed Gram-positive branching rods with presence of hard, lobulated, sulfur granules. What is the most likely causative agent?

- a. *Nocardia*
- b. *Actinomyces israelii*
- c. *Bacillus anthracis*
- d. *Clostridium difficile*
- e. *Staphylococcus aureus*

2020

23. A patient presented in emergency with third degree burns. Treatment was started. After 6 days, pus was seen in his wound dressing. Name the organism causing this infection: green colored

- a) *Staphylococcus*
- b) *Enterobacter*
- c) *Pseudomonas*
- d) *Klebsiella*
- e) *E. coli*

(New)

24. The clinical laboratory reports revealed presence of O157:H7 strains of *E. coli* in the bloody stools of 6 children aged 3-5, who attended a local petting zoo. These young children would be at increased risk of developing:

- a) Buboes
- b) Hemolytic uremic syndrome
- c) Infant botulism
- d) Renal stones
- e) Rice water stools

25. A 38 year old man who recently visited a rural area on business trip, presented to the emergency department with voluminous rice water diarrhea and severe dehydration. Which of the following correctly describes the causative agent?

- a) Gram negative curved rod; toxin that increases cAMP
- b) Gram negative curved rod; toxin that inhibits protein synthesis
- c) Gram negative rod; toxin that decreases AMP
- d) Toxin that blocks the release of acetylcholine
- e) Toxin that inhibits the protein synthesis by ADP ribosylation

(New)

26. A person ate ham burger at dinner. Next day he had bloody diarrhea along with anuria. Gram stain of the stool showed gram negative rods. Culture showed lactose fermenting colonies on MacConkey agar. What would be the reaction of the organism on TSI agar?

- a) Acid slant, acid butt, GAS(+) H<sub>2</sub>S(-)
- b) Alkaline slant, acid butt GAS(-) H<sub>2</sub>S(-)
- c) Alkaline slant, alkaline butt GAS(-) H<sub>2</sub>S(-)
- d) Alkaline slant, acid butt GAS(+) H<sub>2</sub>S(+)
- e) Acidic slant, alkaline butt GAS(+) H<sub>2</sub>S(+)

Acid slant, Acid butt, Gas

27. Name the non-invasive test for the diagnosis of *Helicobacter pylori*

- a) ELISA
- b) ammonia breath test
- c) Urease breath test ✓
- d) Culture & Sensitivity
- e) Biopsy

Defective RNA virus  
Seedup 2020

28. Delta (HDV) hepatitis only occurs in patients who also have either acute or chronic infection with hepatitis B virus. The delta agent is

- a. An incomplete hepatitis B virus
- b. Related to hepatitis A virus
- c. A hepatitis B virus mutant
- d. A defective RNA virus
- e. Hepatitis C virus mutant

29. Tzanck smear is useful for the diagnosis of:

2020 Seedup

- a. Rabies
- b. Herpes Virus infection
- c. HPV infection
- d. Measles
- e. HIV infection

30. Infectious mononucleosis is caused by

- a. Herpes simplex virus
- b. Varicella zoster virus
- c. Cytomegalo virus
- d. Epstein Barr virus
- e. Human herpes virus 8

EBV → IN MN

31. The virus which can be associated with transplacental transmission to fetus is:

- a. Measles virus
- b. Mumps virus
- c. Influenza virus
- d. Respiratory syncytial virus
- e. Rubella virus

New

32. Which of the following is not a type of ELISA technique?

- a. Comparative ELISA
- b. Direct ELISA
- c. Indirect ELISA
- d. Competitive ELISA
- e. Sandwich ELISA



(New)  
33. A sample of urine was received at laboratory reception and there was delay in processing. How should it be kept in the laboratory?

- a. Kept at room temperature
- b. Kept in refrigerator at 2-8 degree centigrade
- c. Kept at below zero degree centigrade temperature
- d. Placed in incubator
- e. Discarded

(New)  
34. Which of the events in acute inflammation comes fourth?

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

Adhesion

35. A 45-year-old woman has had a chronic, non-productive cough and intermittent fever. She has a chest radiograph that reveals multiple small parenchymal nodules along with hilar and cervical lymphadenopathy. A cervical lymph node biopsy is performed. Microscopic examination of the biopsy shows noncaseating granulomatous inflammation. Cultures for bacterial, fungal, and mycobacterial organisms are negative. Which of the following chemical mediators is most important in the development of her inflammatory response?

- a) Interferon gamma
- b) Bradykinin
- c) Complement C5a
- d) Histamine
- e) Prostaglandin E2

(New)  
36. A 45-year-old man has been working hard all day long carrying loads of bricks to build a wall. He takes a non-steroidal anti-inflammatory drug (ibuprofen). Which of the following processes is this drug most likely to diminish in his arms?

- a) Thrombosis
- b) Pain
- c) Necrosis
- d) Fibrinolysis
- e) Scar formation

37. Fluid of blister produced by acute inflammation is most likely

- a) Exudate
- b) Transudate
- c) Pus
- d) Blood
- e) CSF

R

38. A 22-year-old man diagnosed with acute appendicitis and develops abdominal pain. The pain experienced by this patient is predominantly the result of which of the following chemical mediators?

- a) Complement C3b and IgG
- b) Interleukin-1 and tumor necrosis factor
- c) Histamine and serotonin
- d) Prostaglandin and bradykinin
- e) Leukotriene and HPETE

R

39. Which of the following is true regarding secondary union?

- a) Exuberant granulation tissue
- b) Neat Margin
- c) Clear wound
- d) Uninfected
- e) Surgical incision wound

R

40. Which of the following substances will not stimulate an immune response unless they are bound to a molecule?

- a) Antigen
- b. Virus
- c. Hapten
- d. Mitogen
- e. Antibody

→ will not stimulate

41. The specificity of an antibody is due to

- a. its valence
- b. The heavy chains
- c. The Fc portion of the molecule
- d. The variable portion of the heavy and light chain
- e. All of the above

JW

42. The classical complement pathway is initiated by interaction of C1 with which of the following?

- a) Antigen
- b) Factor B
- c) Antigen-Antibody complex
- d) Bacterial lipopolysaccharide
- e) All of the above

43. IgM present on surface of naive mature B cells is:

- a. Pentamer
- b. Trimer
- c. Dimer
- d. Monomer
- e. All of the above



44. Pattern recognition receptors (PRR) include:

- a) LPS
- b) PAMPs
- c) Lipoteichoic acid
- d) Lectin like molecules

45. Ticks does not serve as a vector for the transmission of each of the following disease?

- a. Rocky mountain spotted fever
- b. Epidemic typhus
- c. Tularemia
- d. Lyme disease
- e. Leprosy

46. Which of the following zoonotic Gram negative rod has flea as a vector and leads to plague?

- a. Brucella
- b. Yersinia
- c. Pasteurella
- d. Bordetella
- e. Legionella

47. A 50 years old male presented with severe abdominal pain. Later he also developed bloody stools with mucus. Laboratory findings and clinical tests reveals amoebiasis. Which of the following will be the most appropriate intestinal finding in this patient?

- a. Cobble stone appearance of the intestine
- b. Granulomatous inflammation
- c. Flask shaped ulcers with undermined edges
- d. Blunting of the intestinal villi
- e. Tumor like masses



48. What form of Giardia lamblia plays role in its transmission?

- a. Cysts
- b. Karyosomes
- c. Metacyst
- d. Trophozoites
- e. Nuclei

49. Abdominal ultrasound of a patient showed liver abscess. The pus was aspirated and examined which showed amoebic trophozoites. Which of the following is the characteristic of the liver abscess caused by amoebic dysentery?

- a. yellow colored pus containing dead bacteria
- b. Chocolate colored pus containing red blood cells and dead liver cells
- c. extensive necrosis
- d. Pus containing only E. histolytica cysts
- e. granulation tissue

*New!*  
50. Which of the following would you expect to find in the alveoli in a patient with pneumococcal pneumonia of 24 hours duration?

- a. Serous inflammation
- b. Fibrinous inflammation
- c. Fibrino-purulent inflammation
- d. Suppurative inflammation
- e. Serofibrous inflammation

*(New)*  
51. A 45-year-old woman has a lung biopsy because of a 1.0 cm lesion seen on a chest x-ray. Histologic examination reveals epithelioid macrophages and lymphocytes around a focus of caseous necrosis. What is the best explanation for this form of necrosis?

- a. Granulomatous inflammation
- b. Complement fixation
- c. Local histamine release
- d. PMNs releasing degradative enzymes
- e. Suppurative inflammation

52. Which of the following events in acute inflammation occurs first? *New*

- a. Chemotaxis
- b. Emigration
- c. Hemostasis
- d. Margination
- e. Phagocytosis

53. If the following features of the acute inflammatory reaction were placed in chronological order which would come fourth?

- a. Arteriolar contraction
- b. Blood flow slows
- c. Dilatation of arterioles
- d. Emigration of leucocytes from blood vessels
- e. Protein-rich fluid escapes from blood vessels

(2)



54. Which one of the following ultrastructural features is believed to allow for the increased permeability of the vascular endothelium in acutely inflamed tissue?

- a. Cytoplasmic pinocytotic vesicles
- b. Gaps in endothelial tight junctions
- c. Gaps in basement membrane
- d. Increase in number of phagolysosomes
- e. No morphological changes

(New)

55. Which of the following will impair wound healing?

- a. Deficiency of  $V_{C}$
- b. Excess of glucocorticoids
- c. Tissue hypoxia
- d. Poor vascular supply
- e. All of the above

(New)

(New)

56. Which of the following substance is produced by action of lipoxygenase acid is a potent chemotactic for neutrophils and causes aggregation and adhesion of leukocytes?

- a.  $CS_2$
- b. Prostacyclin
- c. IL-8
- d. Thromboxane  $A_2$
- e. LTB<sub>4</sub>

(New)

57. An 18 year old man lacerated his left hand and required sutures. The sutures were removed one week later. Wound healing continued but the site became disfigured by a prominent raised scar that developed over the next two months. Which of the following terms best describes the process that occurred during this two months period.

- a. Keloid formation
- b. Organization
- c. Dehiscence
- d. Resolution
- e. Secondary union.

R

(New)

58. In cleaning of the clean wound maximum immediate strength of the wound is reached by

- a. 2-3 days
- b. 4-7 days
- c. 10-12 days
- d. 13-18 days
- e. 6 months

R

(New) 13-18 days

(New)  
59. A 20-year-old construction worker falls from 30 ft. and has a fracture of femoral shaft. Six hours later, patient develops shortness of breath and cyanosis. Which of the following best explains the pathogenesis of this patient?

- (A) Acute myocardial infarction
- (B) Deep venous thrombosis
- (C) Fat embolism
- (D) Paradoxical embolism
- (E) Septic shock

(New)  
60. A 69-year-old man is brought to the emergency room complaining of visual difficulty and weakness. On physical examination, the patient is aphasic with a right-sided hemiplegia. Retinal hemorrhages are seen bilaterally. You suspect that a thromboembolus coursed to the left middle cerebral artery and smaller emboli traveled to the retinal arteries. Which of the following anatomic sites is the most likely source for these emboli in this patient?

- (A) Adrenals
- (B) Deep leg veins
- (C) Heart
- (D) Liver
- (E) Lung

(New)  
61. A 42-year-old woman undergoes a face lift. Two days later, she develops confluent hemorrhages in the skin around her eyes ("black eyes"). Which of the following best describes this pattern of superficial skin hemorrhage?

- (A) Ecchymosis
- (B) Hematocephalus
- (C) Maculopapular rash
- (D) Petechiae
- (E) Purpura

(New)  
62. A 60-year-old man known case of ischemic heart disease and a history of smoking complains of increasing shortness of breath. The patient has swollen legs, an enlarged liver, and fluid in the pleural spaces. Which of the following explains the pathogenesis of hepatomegaly in this patient?

- (A) Arterial thromboembolism
- (B) Chronic passive congestion
- (C) Deep venous thrombosis
- (D) Multiple hepatic infarcts
- (E) Thrombosis of the hepatic vein

(New)  
63. A 60-year-old man is hospitalized after injuring his neck in an automobile accident. He is placed in cervical traction. One week later, the patient develops painful swelling and erythema of his left calf. Doppler imaging discloses deep venous thrombosis. Which of the following is the most likely cause of the thrombosis in this patient?

- (A) Age
- (B) Endothelial damage
- (C) Hypercoagulability
- (D) Infection
- (E) Stasis



64. A 50-year-old fire fighter has third-degree burns over 70% of his body. The patient expires 2 hours later. Which of the following was the most likely cause of death?

- (A) Congestive heart failure
- (B) Disseminated intravascular coagulation
- (C) Hypovolemic shock
- (D) Pulmonary saddle embolism
- (E) Toxic shock syndrome

65. A 60-year-old man presents with a 4-month history of increasing weight loss, wheezing, and shortness of breath. He has smoked two packs of cigarettes a day for 40 years. His past medical history is significant for emphysema and chronic bronchitis. A chest X-ray shows a 10-cm mass in the left lung. Bronchoscopy discloses obstruction of the left main stem bronchus. A biopsy shows features of squamous cell carcinoma. Immunohistochemical studies of this biopsy specimen would most likely show staining for which of the following tumor markers?

- (A) Alpha-fetoprotein
- (B) Calretinin
- (C) Carcinoembryonic antigen
- (D) Cytokeratin
- (E) Synaptophysin

New 66. A 60-year-old chemical factory worker complains of blood in his urine. Urine cytology discloses dysplastic cells. A bladder biopsy demonstrates transitional cell carcinoma. Which of the following carcinogens was most likely involved in the pathogenesis of urinary bladder cancer?

- (A) Aniline dyes
- (B) Arsenic
- (C) Benzene
- (D) Cisplatin
- (E) Vinyl chloride

67. During a routine checkup, a 50-year-old man with excellent health is found to have blood in his urine. An abdominal CT scan reveals a 2-cm right renal mass. You inform the patient that staging of this tumor is key to selecting treatment and evaluating prognosis. Which of the following is the most important staging factor for this patient?

- (A) Histologic grade of the tumor
- (B) Metastases to regional lymph nodes
- (C) Proliferative capacity of the tumor cells
- (D) Somatic mutations in the p53 tumor suppressor gene
- (E) Tumor cell karyotype (aneuploidy)

(New)  
68. A 68-year-old man who has worked in a shipyard and manufacturing plant all his adult life complains of a four month history of chest discomfort, malaise, fever, night sweats, and weight loss. A chest X-ray reveals a large pleural effusion. The patient dies 5 months later of cardiorespiratory failure. Lung autopsy showed mesotheliomas of left lung. This malignant neoplasm is associated with environmental exposure to which of the following carcinogens?

- (A) Aflatoxin B1
- (B) Asbestos
- (C) Beryllium
- (D) Ionizing radiation
- (E) Silica

New  
69. You are asked to participate in a research project on myocardial infarctions in a rat model. Which of the following occurs in ischemic cell injury?

- a. Efflux of  $K^+$  and  $Na^+$
- b. Influx of  $K^+$  and  $Na^+$
- c. Influx of  $K^+$  and  $Cl^-$
- d. Influx of  $Na^+$  and  $Ca^{++}$
- e. Influx of  $Na^+$  and  $Cl^-$

New  
70. A 10 year-old boy with known history of sickle cell disease presents to the emergency department complaining of left hypochondrial pain suggestive of a splenic infarct. Microscopic examination of the spleen would most likely reveal which of the following?

- a. Caseous necrosis
- b. Coagulative necrosis
- c. Fibrinoid necrosis
- d. Gangrenous necrosis
- e. Liquefactive necrosis

71. A 3<sup>rd</sup> year medical student is asked to write a microscopic description of a coagulative necrosis that was found in the heart of a patient who died of a heart attack. Which of the following best describes coagulative necrosis?

- a. Central amorphous acellular eosinophilic material.
- b. Eosinophilic cytoplasm with cell outlines preserved.
- c. Granular, friable mass of material devoid of cell outlines.
- d. Localized, solid, basophilic lesion with calcification
- e. Necrosis in which tissue is converted into a fluid

72. A patient is suffering from stroke and has left sided weakness and paralysis in the upper extremity. The type of necrosis associated with well-developed infarct of the brain is:

- a. Caseous necrosis
- b. Coagulative necrosis
- c. Fibrinoid necrosis
- d. Gangrenous necrosis
- e. Liquefactive necrosis

73. Neutrophils have short half-lives in tissues and die within a few hours after leaving the blood. Which of the following mechanisms is responsible for their death?

- a. Autophagy
- b. Apoptosis
- c. Autolysis
- d. Necrosis
- e. Ischemia

2, 9