1. FMD virus in dry fecal matter during summer can persist for up to:
   A) 7 days B) 10 days C) **14 days** D) 21 days

2. In winter, FMD virus may survive in soil for as long as:
   A) 3 days B) 14 days C) 21 days D) **28 days**

3. Among livestock, which species acts as an amplifier host for FMD?
   A) Cattle B) Sheep C) Goats D) **Pigs**

4. The middle layer of the stratum spinosum in the epidermis is significant because it is:
   A) A barrier to viral entry
   B) The site of antibody production
   C) Where virus-induced necrosis is minimal
   D) **The most favorable cell layer for FMD virus replication**

5. FMD virus is effectively inactivated when exposed to temperatures above 56°C for 30 minutes.
   A) **True** B) False C) Only in the presence of disinfectants D) Only under acidic conditions

6. On hay or straw bedding, FMD virus can remain viable for:
   A) 10 weeks B) 15 weeks C) **Up to 20 weeks** D) 6 weeks

7. In India, the FMD outbreak is most frequently associated with which serotype?
   A) Type A B) Asia 1 C) SAT 2 D) **Type O**

8. FMD virus loses infectivity outside the pH range of:
   A) 4–7 B) 5–8 C) 7–10 D) **6–9**

9. FMD virus excretion by infected animals begins approximately how many days before clinical signs appear?
   A) 1 day B) 2 days C) **4 days** D) 7 days

10. In diagnosing FMD, which type of lesion is considered a better source for virus recovery in older cases?
    A) Oral lesions B) Nasal lesions C) **Foot lesions** D) Skin lesions on the udder

11. Bacillus anthracis is best classified as a:
    A) Gram-negative rod B) Acid-fast bacillus C) Non-spore-forming coccus D) **Gram-positive, aerobic, spore-forming bacillus**

12. The capsule of Bacillus anthracis is primarily composed of:
    A) Polysaccharide B) Proteins C) **Poly–D–glutamic acid** D) Lipopolysaccharide

13. Which diagnostic reaction is classically used to demonstrate Bacillus anthracis in smears?
    A) Ziehl–Neelsen stain B) Gram stain C) **McFadyean reaction** D) India ink preparation

14. The virulence of anthrax is largely attributed to:
    A) Slow bacterial replication
    B) **The combined action of its capsule and tripartite toxin**
    C) Its ability to form biofilms
    D) Rapid spore germination

15. Anthrax spores may remain viable in soil for:
A) Several days B) Several months C) Several years D) **Decades**

16. Which of the following species is relatively resistant to anthrax?
A) Cattle B) Sheep C) **Swine** D) Goats

17. In young animals affected by anthrax, death is most commonly due to:
A) Respiratory failure B) **Acute myocarditis and gastroenteritis** C) Neurological collapse D) Renal failure

18. The capsule of Bacillus anthracis aids virulence by:
A) Triggering cytokine storm
B) **Preventing phagocytosis**
C) Enhancing spore formation
D) Inducing apoptosis

19. The protective antigen of Bacillus anthracis is encoded on which plasmid?
A) pXO2 B) **pXO1** C) pBR322 D) pUC19

20. Due to its potential for bioterrorism, anthrax is classified under:
A) Category B B) Category C C) **Category A** D) Category D

21. Hemorrhagic septicemia (HS) is caused by:
A) Mannheimia haemolytica B) Escherichia coli C) Clostridium perfringens D) **Pasteurella multocida type 1**

22. HS outbreaks are most common during which season?
A) Summer B) Winter C) **Monsoon** D) Spring

23. A key precipitating factor for HS is:
A) Overfeeding B) **Stress due to transportation and heavy worm burden** C) Genetic predisposition D) Lack of exercise

24. The initial site of bacterial proliferation in HS is the:
A) Lungs B) **Tonsillar region** C) Liver D) Kidneys

25. Early treatment of HS often includes which antibiotic?
A) Tetracycline B) Sulfonamides C) Chloramphenicol D) **Penicillin**

26. In HS, the primary reservoir for infective bacteria in asymptomatic carriers is the:
A) Skin B) Gastrointestinal tract C) **Nasopharynx of bovine carriers** D) Urinary tract

27. In peracute cases of HS, death may occur within:
A) 12 hours B) **8–24 hours** C) 3–5 days D) 7–10 days

28. Supportive therapy in HS management typically involves:
A) Antifungals B) Immunosuppressants C) **Fluid therapy and anti-inflammatory agents** D) Diuretics

29. Among livestock, HS is most frequently observed in:
A) Buffalo B) **Cattle** C) Pigs D) Horses

30. In HS, ingestion of contaminated feed or water is:
A) Rare B) Unimportant C) **A recognized transmission route** D) Only theoretical

31. In sheep and goats, pneumonic pasteurellosis is most often caused by:
A) Pasteurella multocida B) **Mannheimia haemolytica A2** C) Bibersteinia trehalosi D) Streptococcus dysgalactiae

32. In pigs, the normal inhabitant of the upper respiratory tract implicated in pasteurellosis is:
A) Mannheimia haemolytica B) **Pasteurella multocida** C) Staphylococcus aureus D) Mycoplasma hyopneumoniae

33. Pneumonic pasteurellosis in small ruminants can affect:
A) Only neonates B) Only adults C) Only immunocompromised animals D) **All age groups**

34. The leukotoxin produced during pasteurellosis primarily targets:
A) Epithelial cells B) Neurons C) Red blood cells D) **Ruminant leukocytes**

35. The systemic form of pasteurellosis in weaned lambs is mainly caused by:
A) Biotype A of Mannheimia haemolytica B) **Biotype B of Mannheimia haemolytica** C) Pasteurella multocida D) Bibersteinia trehalosi

36. Listeria monocytogenes can grow at temperatures as low as:
A) 0°C B) 2°C C) **4°C** D) 10°C

37. In ruminants, listeriosis most commonly presents as:
A) Septicemia B) Abortion C) Enteritis D) **Encephalitis with unilateral paralysis**

38. The cold enrichment method for listeriosis relies on the organism's ability to multiply at:
A) 37°C B) 25°C C) 10°C D) **4°C**

39. Listeria monocytogenes is an intracellular pathogen.
A) **True** B) False C) Only in ruminants D) Only in swine

40. In cases of listerial encephalitis, the ideal specimen for isolation is:
A) Milk B) Blood C) Feces D) **Brain tissue**

41. Mycobacterium bovis is the primary cause of tuberculosis in:
A) Humans B) **Cattle** C) Birds D) Swine

42. The MGIT BACTEC system is considered the gold standard for:
A) DNA sequencing of TB strains B) **Rapid culture and drug-sensitivity testing of Mycobacterium tuberculosis** C) Antibody detection in TB D) Histopathological examination

43. In bovine tuberculosis, the primary complex is most commonly located in the:
A) Lymph nodes B) **Lungs** C) Liver D) Spleen

44. For TB screening in cattle, the most widely used test is the:
A) Rose Bengal test B) **Single intradermal tuberculin test** C) ELISA for NSP antibodies D) Agglutination test

45. "Pearl's disease" in bovine tuberculosis refers to:
A) **Grape-like clusters of nodular lesions on serosal surfaces** B) Calcification of pulmonary nodules C) Caseation in lymph nodes D) Diffuse hepatic granulomas

46. Mycobacterium avium primarily infects:
A) Cattle B) **Birds** C) Swine D) Horses

47. A false-negative tuberculin test in cattle may occur due to:
A) Recent infection B) **Advanced disease with anergic response** C) Over-vaccination D) Excessive tuberculin dose

48. The Stormont test in tuberculosis is used to:
A) Isolate mycobacteria B) **Assess delayed hypersensitivity reaction to tuberculin** C) Measure serum IgG levels D) Visualize granulomas

49. Johne's disease is caused by:
A) Mycobacterium tuberculosis B) Mycobacterium bovis C) **Mycobacterium avium subspecies paratuberculosis** D) Mycobacterium leprae

50. The pathognomonic gross lesion in Johne's disease is:
A) Ulcerative colitis B) Granulomas in the liver C) **Thickened, corrugated intestinal mucosa resembling brain tissue** D) Nodular splenomegaly

51. Transmission of Johne's disease primarily occurs through:
A) Aerosol inhalation B) **Ingestion of contaminated feed or water** C) Direct skin contact D) Vector-borne routes

52. The rectal pinch technique in Johne's disease is used for:
A) Vaccination B) **Diagnostic sampling of intestinal tissue** C) Therapeutic intervention D) Monitoring treatment response

53. The incubation period for Johne's disease is typically:
A) Weeks B) Months C) **Years** D) Days

54. A common serological test for Johne's disease is the:
A) PCR assay B) Western blot C) Agglutination test D) **Complement Fixation Test (CFT)**

55. Brucellosis is caused by bacteria that are:
A) **Gram-negative coccobacilli** B) Gram-positive cocci C) Spore-forming rods D) Acid-fast bacilli

56. In small ruminants, the most zoonotic Brucella species is:
A) B. abortus B) **B. melitensis** C) B. suis D) B. canis

57. A substance present in fetal tissues that enhances Brucella growth is:
A) Glucose B) Fructose C) **Erythritol** D) Sucrose

58. An early sign of brucellosis in a herd is often:
A) Lameness B) Reduced milk production C) **An abortion storm in late gestation** D) Chronic cough

59. The Rose Bengal Plate Test in brucellosis is primarily used for:
A) Confirmatory diagnosis B) **Screening for antibodies** C) Bacterial culture D) Drug sensitivity

60. Live Brucella vaccines are generally avoided in:
A) Calves B) Heifers C) Pregnant cows D) **Bulls**

61. Rinderpest belongs to which virus family?
A) **Paramyxoviridae** B) Picornaviridae C) Orthomyxoviridae D) Reoviridae

62. Peste des petits ruminants (PPR) predominantly affects:
A) Cattle B) Buffaloes C) **Sheep and goats** D) Pigs

63. Which disease has been declared globally eradicated?
A) PPR B) FMD C) **Rinderpest** D) Brucellosis

64. The PPR virus is most closely related to:
A) Canine distemper virus B) Measles virus C) **Rinderpest virus** D) FMD virus

65. In PPR, which group shows a higher mortality rate?
A) Sheep B) **Goats** C) Cattle D) Buffaloes

66. Black Quarter (Blackleg) in cattle is most commonly caused by:
A) Clostridium septicum B) **Clostridium chauvoei** C) Clostridium novyi D) Clostridium perfringens

67. Pulpy kidney disease in lambs is due to infection by:
A) Clostridium perfringens type A B) **Clostridium perfringens type D** C) Clostridium tetani D) Clostridium botulinum

68. The neurotoxin responsible for tetanus is known as:
A) Tetanolysin B) **Tetanospasmin** C) Botulinum toxin D) Clostridial enterotoxin

69. Botulism in animals is primarily caused by:
A) Ingestion of live Clostridium botulinum B) **Ingestion of preformed botulinum toxin** C) Direct wound infection D) Inhalation of spores

70. The “saw horse” stance in affected animals is most characteristic of:
A) Botulism B) Black Quarter C) **Tetanus** D) Malignant edema

71. Effective management of tetanus relies on early administration of:
A) Antibiotics alone B) **Antitoxin to neutralize circulating tetanus toxin** C) Surgical debridement only D) Supportive care without specific therapy

72. Malignant edema is most commonly associated with which clostridial species?
A) Clostridium tetani B) **Clostridium septicum** C) Clostridium perfringens type D D) Clostridium botulinum

73. In Black Quarter, monsoon-induced stress triggers:
A) Immediate resolution of infection B) **Activation of dormant spores leading to rapid toxin production** C) Formation of granulomas D) A delayed immune response

74. In clostridial infections, penicillin is used primarily to:
A) Neutralize toxins B) **Eliminate bacteria before significant toxin production occurs** C) Stimulate antibody production D) Prevent spore formation

75. Mastitis is defined as inflammation of the:
A) Liver B) Kidney C) Lymph nodes D) **Mammary gland (udder)**

76. The most common contagious pathogen causing mastitis is:
A) Escherichia coli B) Streptococcus uberis C) Mycoplasma spp. D) **Staphylococcus aureus**

77. The California Mastitis Test (CMT) primarily detects:
A) Bacterial culture growth B) Milk fat alterations C) **Increased somatic cell count** D) pH changes only

78. In cases of mastitis, the pH of milk typically rises to values:
A) Below 6.5 B) 6.5–6.8 C) **Above 7.4** D) Exactly 7.0

79. Dry cow therapy is primarily employed to:
A) Increase milk production immediately after calving B) **Prevent new intramammary infections during the dry period** C) Treat acute mastitis D) Enhance udder conformation

80. The milk ring test is used in brucellosis screening to detect:
A) Milk fat percentage B) **Antibodies against Brucella in milk** C) Somatic cell counts D) Bacterial endotoxins

81. Neonatal diseases in livestock typically occur within:
A) **Birth to 14 days** B) 14–30 days C) 1–2 months D) 2–3 months

82. In early postnatal calves, noninfectious diseases are most often due to:
A) Viral infections B) Bacterial sepsis C) **Metabolic factors such as hypoglycemia and hypothermia** D) Parasitic infestations

83. Failure of passive transfer in neonates is most commonly a result of:
A) Genetic abnormalities B) Overfeeding C) **Inadequate colostrum intake** D) Excessive physical activity

84. In neonatal colibacillosis, the primary causative organism is:
A) Salmonella spp. B) Rotavirus C) Clostridium perfringens D) **Enteropathogenic Escherichia coli**

85. A serum total protein level of 5.2 g/dL or greater in neonatal calves indicates:
A) Dehydration B) Liver dysfunction C) **Adequate passive transfer of immunity** D) Renal insufficiency

86. Elevated serum gamma-glutamyl transferase (GGT) activity in calves after birth is used to assess:
A) Kidney function B) Liver damage C) **Successful colostral antibody transfer** D) Muscle injury

87. Twin-born calves typically exhibit higher mortality rates primarily due to:
A) Genetic defects B) Overnutrition C) **Failure of passive transfer of immunoglobulins** D) Increased birth weight

88. “Navel ill” in neonatal calves refers to:
A) Umbilical hernia B) **Infection of the umbilical cord leading to systemic sepsis** C) Congenital deformity D) Nutritional deficiency

89. The enterotoxemic form of neonatal colibacillosis is characterized by:
A) Prolonged diarrhea with gradual recovery B) **Rapid collapse and death with minimal diarrheal output** C) Chronic intermittent fever D) Persistent coughing

90. Among viral agents, which is most commonly implicated in neonatal calf diarrhea outbreaks?
A) Coronavirus B) BVD virus C) Adenovirus D) **Rotavirus**

91. In septicemic colibacillosis of neonates, bacterial localization in joints may lead to:
A) Respiratory distress B) Skin lesions C) **Arthritis and lameness** D) Neurological deficits

92. The white side test is utilized to detect mastitis by identifying:
A) Milk protein alterations B) **Changes due to increased somatic cell content** C) Bacterial DNA D) Fatty acid levels

93. To prevent hypothermia in neonatal calves, a critical management practice is:
A) Immediate weaning B) Reducing feed intake C) Increasing physical activity D) **Providing shelter and supplemental heat**

94. In mastitis diagnostics, the NAG-ase test is used to assess:
A) Bacterial culture growth B) Milk fat content C) **Enzyme activity linked to somatic cells** D) pH levels

95. In neonatal diarrhea, metabolic acidosis is mainly caused by:
A) Lactic acid buildup B) Renal failure C) **Loss of bicarbonate ions in the intestines** D) Overproduction of gastric acid

96. To assess the adequacy of passive immunity in calves, the most reliable measurement is:
A) Serum creatinine B) White blood cell count C) **Serum total protein and IgG levels** D) Serum glucose

97. The minimal gestational age for viability in lambs is approximately:
A) 108 days B) 240 days C) 300 days D) **138 days**

98. In neonates, the risk of septicemic disease is most closely linked to:
A) Birth weight B) Ambient temperature C) **Serum IgG concentration (adequate passive transfer)** D) Genetic predisposition

99. A critical measure in evaluating passive transfer in neonatal calves is the:
A) White blood cell count B) Serum creatinine level C) **Serum total protein concentration** D) Blood pH

100. The best indicator of effective colostral transfer in neonates is:
A) Elevated liver enzymes B) Low somatic cell count C) **High serum IgG levels** D) Increased body temperature