PROVISIONAL ANSWER KEY

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Question1:-In the context of water bacteriology, what does the Eijkman test specifically assess

A:-It detects the presence of total coliforms at 37°C

B:-It identifies *Escherichia coli* based on gas production at 44°C

C:-It measures turbidity caused by bacterial growth

D:-It uses selective agar to culture faecal streptococci

Correct Answer:- Option-B

Question2:-Which of the following best explains why bacterial transformation is significant in nature ?

A:-It is the only way bacteria reproduce

B:-It allows bacteria to gain energy from DNA

C:-It enables horizontal gene transfer, promoting genetic diversity

D:-It occurs only in pathogenic bacteria

Correct Answer:- Option-C

Question3:-During an internal audit in a microbiology lab, it was found that the lab did not record the lot numbers of antibiotic discs used in Antimicrobial Susceptibility Testing (AST). Which principle of accreditation is being violated ?

A:-Personnel competency

B:-Sample traceability

C:-Reagent and consumable control

D:-Equipment calibration

Correct Answer:- Option-C

Question4:-Which of the following terms describes the widespread microbial ability to use molecules other than oxygen as the final electron acceptor in energy metabolism ?

A:-Photosynthesis

B:-Fermentation

C:-Anaerobic respiration

D:-Nitrogen fixation

Correct Answer:- Option-C

Question5:-The peptidoglycan biosynthetic pathway is clinically important because many antibiotics target it. Which of the following antibiotics does not inhibit a step in peptidoglycan (cell-wall) biosynthesis ?

A:-Cycloserine

B:-Vancomycin

C:-Bacitracin

D:-Streptomycin

Correct Answer:- Option-D

Question6:-A 23-year-old woman presents with a history of recurrent Urinary Tract Infections (UTls), including one prior episode of acute pyelonephritis. Blood typing reveals that she expresses the P blood group antigen on her uroepithelial cells. Which of the following organisms is most likely cause of UTI ?

A:-*E. coli* producing heat stable toxin

B:-*E. coli* with type 1 pili

C:-*E. coli* O157:H7

D:-*E. coli* with P pili

Correct Answer:- Option-D

Question7:-
Which of the following statements is correct about HEPA (High Efficiency Particulate Air)
filters ?

A:-They are least 95% efficient at removing all microbes from the air that passes through them.

B:-They are at least 95% efficient at removing all microbes > = 0.3 micrometers from the air that passes through them.

C:-There are at least 97.7% efficient at removing all microbes > = 0.3 micrometers from the air that passes through them.

D:-They are at least 99.97% efficient at removing all microbes > = 0.3 micrometers from the air that passes through them.

Correct Answer:- Option-D

Question8:-An infection control team is investigating an outbreak of respiratory illness in a hospital ward. They suspect airborne (aerosol) transmission. Which of the following pathogens is least likely to spread primarily via the aerosol route ?

A:-*Mycobacterium tuberculosis*

B:-*Haemophilus Influenzae*

C:-*Measles virus*

D:-*Varicella-zoster virus* (Chickenpox)

Correct Answer:- Option-B

Question9:-A 58-year-old man in the ICU develops ventilator-associated pneumonia due to multidrug-resistant Klebsiella pneumoniae. The isolate shows resistance to colistin, which had been considered the last-line therapy. What is the most common mechanism of colistin resistance in Gram-negative bacteria ?

A:-Modification of lipid A of lipopolysaccharide

B:-Overexpression of multidrug efflux pumps

C:-Production of colistin-degrading enzymes

D:-Increased capsule production/outer membrane thickening that reduces drug access

Correct Answer:- Option-A

Question10:-Biological indicators are used to monitor the efficacy of sterilization methods. Which organism is used as the standard control for testing the sterilization of membrane filters ?

A:-*Serratia marcescens*

B:-*Geobacillus stearothermophilus*

C:-*Bacillus atrophaeus*

D:-*Bacillus subtilis*

Correct Answer:- Option-A

Question11:-In a surgical lCU, five patients develop postoperative wound infections caused by the same organism. To prevent further cross-infection to other patients in the ward, the most effective immediate measure is

A:-Administer prophylactic antibiotics to all other patients

B:-Fumigate the ward

C:-Disinfect the ward with sodium hypochlorite

D:-Ensure strict adherence to proper hand hygiene practices

Correct Answer:- Option-D

Question12:-When an EQA program is not available, all of the following methodologies are acceptable alternatives for monitoring of examination method performance except

A:-Participation in sample exchanges with other laboratories

B:-Interlaboratory comparisons of the results of the examination of identical lQC material which evaluates individual laboratory IQC results against pooled results from participants using the same IQC material

C:-Retesting of retained patient samples

D:-Analysis of patient samples from clinical correlation studies

Correct Answer:- Option-C

Question13:-A patient receiving broad-spectrum antibiotics develops severe watery diarrhea several days after therapy. This occurs because antimicrobial treatment reduces susceptible gut microbiota and allows a relatively resistant species to overgrow and produce toxins.

Which of the following bacterial species is most commonly responsible for this clinical syndrome ?

A:-*Clostridioides difficile*

B:-*Escherichia coli*

C:-*Enterococcus faecalis*

D:-*Bacteroides fragilis*

Correct Answer:- Option-A

Question14:-Which of the following microscopes is most suitable to obtain a three-dimensional (3D) image of the surface topography of a specimen ?

A:-Transmission Electron Microscopy (TEM)

B:-Light (Bright-field) Microscopy

C:-Scanning Electron Microscopy (SEM)

D:-Phase Contrast Microscopy

Correct Answer:- Option-C

Question15:-A 9-year-old child presents with fever and an adherent grey pseudomembrane on the tonsils. *Corynebacterium diphtheriae* is isolated. Which of the following statements about the Diphtheria Toxin (DT) is correct ?

A:-The gene for DT is located on the bacterial chromosome and is constitutively expressed.

B:-The tox gene is carried on a lysogenic bacteriophage and expression is repressed by an iron-dependent repressor (DtxR) when iron is abundant.

C:-DT inactivates the 60S ribosomal subunit causing inhibition of protein synthesis.

D:-DT is an endotoxin (lipopolysaccharide) released on cell lysis.

Correct Answer:- Option-B

Question16:-Which cell type is most critical in the initiation of mucosal immunity ?

A:-Langerhans cell

B:-M cell

C:-Macrophage

D:-Natural killer cell

Correct Answer:- Option-B

Question17:-Which of the following statements regarding Toll-Like Receptors (TLRs) is CORRECT ?

A:-TLRs are present only on adaptive cells

B:-TLR4 recognizes bacterial LPS and activates innate immunity

C:-TLR activation causes direct destruction of pathogens

D:-TLR signaling is independent of MyD88

Correct Answer:- Option-B

Question18:-
Gelatin capsules have been reported to cause anaphylaxis in certain individuals. Which of the following statements are true ?
i. Anaphylaxis to gelatin capsules is mediated by preformed IgE antibodies against gelatin.
ii. The reaction represents a Type I hypersensitivity response.
iii. Gelatin-induced anaphylaxis is dose-dependent and occurs only after multiple exposures.

A:-Only i and ii

B:-Only ii and iii

C:-All of the above i, ii and iii

D:-Only i and iii

Correct Answer:- Option-A

Question19:-Why does maternal immune system not attack fetus ?

A:-Fetus expresses maternal MHC only

B:-Maternal immune system is fully suppressed

C:-Placenta serves as immunological barrier and lacks MHC I/II

D:-Fetus produces antibodies neutralizing maternal cells

Correct Answer:- Option-C

Question20:-
Why is the serum sample heated in the VDRL test but not in the RPR test ?
i. Heating of serum in the VDRL test destroys complement to prevent nonspecific activation and false-positive reactions.
ii. Complement is already inactivated in the RPR test because of choline chloride, so heating is not required.
iii. Heating of serum in the VDRL test enhances sensitivity by improving the visibility of flocculation under microscopy.

A:-Only i and ii

B:-Only ii and iii

C:-All of the above i, ii and iii

D:-Only i

Correct Answer:- Option-A

Question21:-Which of the following statements correctly distinguishes agglutination and precipitation reactions based on the solubility of the antigen and antibody involved ?

A:-Agglutination involves soluble antigens and soluble antibodies, whereas precipitation involves insoluble antigens and soluble antibodies.

B:-Agglutination involves insoluble (particulate) antigens and soluble antibodies forming visible clumps, whereas precipitation involves soluble antigens and soluble antibodies forming a visible insoluble precipitate.

C:-Agglutination involves insoluble antibodies with soluble antigens, and precipitation involves soluble antibodies with soluble antigens.

D:-Both agglutination and precipitation involve soluble antigens, but only agglutination forms visible clumps.

Correct Answer:- Option-B

Question22:-Which of the following statements correctly distinguishes hypersensitivity from autoimmunity ?

A:-Hypersensitivity is an immune response against self, while autoimmunity is a response against non-self.

B:-Hypersensitivity is an exaggerated immune response to non-self antigens, while autoimmunity is a response directed against self-antigens.

C:-Hypersensitivity results from failure to recognize self, while autoimmunity results from failure to recognize non-self.

D:-Both hypersensitivity and autoimmunity are due to an underactive immune response.

Correct Answer:- Option-B

Question23:-Which of the following statements correctly describe antigen presentation in humoral and cell-mediated immunity ?

i. In humoral immunity, $CD4^+$ helper T cells recognize antigens presented on MHC II molecules and activate B cells to produce antibodies.

ii. In cell-mediated immunity, $CD8^+$ cytotoxic T cells recognize antigens presented on MHC I molecules and destroy infected or altered self-cells.

iii. MHC I is primarily involved in presentation of extracellular antigens, whereas MHC II presents intracellular (endogenous) antigens.

A:-Only i and ii

B:-Only ii and iii

C:-All of the above i, ii and iii

D:-Only i

Correct Answer:- Option-A

Question24:-Cytokine inhibiting Th 1 and promoting Th 2 differentiation ?

A:-IL-2

B:-IL-4

C:-IL-12

D:-IFN-γ

Correct Answer:- Option-B

Question25:-Mode of inheritance of Chronic Granulomatous Disease

A:-Autosomal dominant

B:-Autosomal recessive

C:-X-linked

D:-Mitochondrial

Correct Answer:- Option-C

Question26:-Graves' disease is best classified as which of the following ?

A:-An autoimmune disorder mediated by Type I hypersensitivity

B:-An autoimmune disorder mediated by Type II hypersensitivity

C:-A non-auto immune disorder mediated by Type IV hypersensitivity

D:-An autoimmune disorder mediated by Type III hypersensitivity

Correct Answer:- Option-B

Question27:-In Dengue infection, Antibody-Dependent Enhancement (ADE) refers to :

A:-Enhancement seen only on reinfection with the same serotype

B:-Enhanced severity due to antibodies from a previous serotype facilitating infection with a different serotype

C:-Occurrence only when multiple serotypes infect simultaneously

D:-A mechanism that strengthens protective immunity

Correct Answer:- Option-B

Question28:-Graft-versus-host disease (GVHD) occurs when

A:-The host immune system rejects the transplanted tissue

B:-Immunocompetent donor lymphocytes attack the recipient’s tissues

C:-The recipient’s immune system attacks the transplanted organ

D:-The transplanted tissue itself undergoes rejection

Correct Answer:- Option-B

Question29:-Bombay (Oh) blood group red blood cells express which antigens ?

A:-A and B antigens

B:-Only A antigen

C:-Only B antigen

D:-Neither A nor B antigens; plasma contains anti-A and anti-B antibodies

Correct Answer:- Option-D

Question30:-What is the purpose of using latex particles in latex agglutination tests ?

A:-To increase the size of antigen-antibody complexes for easier detection

B:-To induce a visible color change

C:-To convert a precipitation reaction into an agglutination reaction

D:-To prevent formation of immune complexes

Correct Answer:- Option-C

Question31:-The first test to be done in the differential diagnosis of bacterial atypical pneumonia

A:-CBNAAT

B:-Cold agglutinin test

C:-Culture and sensitivity

D:-Weil Felix test

Correct Answer:- Option-B

Question32:-The characteristic finding in high vaginal swab smear of Gardnerella vaginalis

A:-Warthin-Finkeldey cells

B:-Clue cell

C:-Guarnieri body

D:-Cowdry bodies

Correct Answer:- Option-B

Question33:-Zoonotic tetrad in Scrub Typhus includes all except

A:-Ixodes

B:-Small mammals

C:-Scrub vegetation

D:-Wet season

Correct Answer:- Option-A

Question34:-A 20 year old man presented with haemorrhagic colitis. The stool sample grew Escherichia coli in pure culture. The following serotype of E. coli is likely to be the causative agent

A:-O157 : H7

B:-O159 : H9

C:-O107 : H7

D:-O55 : H7

Correct Answer:- Option-A

Question35:-Bipolar staining is characteristic feature of

A:-Shigella spp

B:-Yersinia pestis

C:-Klebsiella pneumoniae

D:-Proteus spp

Correct Answer:- Option-B

Question36:-Chick erythrocyte agglutination is positive in the following biotype of vibrio cholerae

A:-Classical

B:-El Tor

C:-O139

D:-Non agglutinable vibrio

Correct Answer:- Option-B

Question37:-CAMP test is useful in identification of

A:-S. pyogenes

B:-S. agalactiae

C:-S. pneumoniae

D:-Viridans streptococci

Correct Answer:- Option-B

Question38:-"Malignant pustule" is a term used for

A:-An infected malignant melanoma

B:-A carbuncle

C:-A rapidly spreading rodent ulcer

D:-Anthrax of the skin

Correct Answer:- Option-D

Question39:-Fever in Brucella infection is described as

A:-Breakbone fever

B:-Step ladder fever

C:-Undulating fever

D:-Pontiac fever

Correct Answer:- Option-C

Question40:-The most effective way of preventing Tetanus

A:-Hyperbaric oxygen

B:-Antibiotics

C:-Tetanus toxoid

D:-Surgical debridement and toilet

Correct Answer:- Option-C

Question41:-
The most common cause of primary (spontaneous) bacterial peritonitis is

A:-Escherichia coli

B:-Streptococci

C:-Enterococci

D:-Pneumococci

Correct Answer:- Option-A

Question42:-Modified Dukes criteria is useful in diagnosing

A:-Infective endocarditis

B:-Ventilator associated pneumonia

C:-Sepsis and septic shock

D:-Acute rheumatic fever

Correct Answer:- Option-A

Question43:-The following statement is not a feature of Line Probe Assay in the diagnosis of Mycobacterium tuberculosis

A:-Detects resistance to second line anti tubercular drugs

B:-Speciation of MTB and non tuberculous mycobacteria

C:-Recommended for smear negative tuberculosis

D:-Detects resistance to first line anti tubercular drugs

Correct Answer:- Option-C

Question44:-Which is the least preferred antimicrobial for the treatment of MSSA (Methicillin Sensitive Staphylococcus aureus) ?

A:-Dicloxacillin

B:-Cephalexin

C:-Cefazolin

D:-Vancomycin

Correct Answer:- Option-D

Question45:-The causative agent of Pseudomembranous colitis is

A:-Clostridium tetani

B:-Clostridium perfringens

C:-Clostridium difficile

D:-Clostridium botulinum

Correct Answer:- Option-C

Question46:-All are true about third generation ELISA used for HCV antibody detection except

A:-Employs antigens from NS5, NS3 and NS4 regions of HCV genome

B:-It is not influenced by HCV genotype

C:-These assays detect IgM antibodies to HCV

D:-Increased sensitivity and specificity (>99%)

Correct Answer:- Option-C

Question47:-All are true about interferons (IFNs) in host defense against viral infections in humans except

A:-RNA viruses are stronger inducers of IFN than DNA viruses

B:-Interferons are host coded protein

C:-IFN gamma is induced by mitogen stimulation

D:-Alpha IFN receptor gene is located on human chromosome 6

Correct Answer:- Option-D

Question48:-Which among the following is the adenovirus protein that regulate early transcription of the viral genes and modulate the cell cycle ?

A:-Hexon

B:-E1 region protein

C:-Cysteine proteinase

D:-E3 region glycoprotein

Correct Answer:- Option-B

Question49:-The most common congenital infection is caused by

A:-Herpes simplex virus type 2

B:-Cytomegalovirus

C:-Varicella-zoster virus

D:-Ebstein Barr virus

Correct Answer:- Option-B

Question50:-Pronounced lymphadenopathy is a characteristic clinical feature in

A:-Small pox

B:-Chicken pox

C:-Monkey pox

D:-Cow pox

Correct Answer:- Option-C

Question51:-Koplik spots are pathognomonic for which of the following infection ?

A:-Mumps

B:-German measles

C:-Measles

D:-Hendra

Correct Answer:- Option-C

Question52:-Which of the following statement about the escape mutants of Hepatitis B virus is correct ?

I. Escape mutants are observed in infants born to HBeAg positive mothers
II. Escape mutants are not capable of infection in vaccinated individuals
III. Escape mutants have mutation in the S gene
IV. All patients infected with escape mutants can be diagnosed by routine serological testing for HBsAg

A:-I and II only

B:-II and III only

C:-I and III only

D:-I and IV only

Correct Answer:- Option-C

Question53:-Which of the following infection is not vaccine preventable ?

A:-Hepatitis A virus infection

B:-Hepatitis B virus infection

C:-Hepatitis C virus infection

D:-Hepatitis E virus infection

Correct Answer:- Option-C

Question54:-Which of the following properties of Enterovirus is not shared by Rhinovirus ?

A:-Stable at acid pH

B:-Resistance to lipid solvents

C:-Single stranded RNA genome

D:-Icosahedral symmetry

Correct Answer:- Option-A

Question55:-Which of the following virus is associated with severe diarrheal illness in infants worldwide ?

A:-Group A Rota virus

B:-Group B Rota virus

C:-Group C Rota virus

D:-Group D Rota virus

Correct Answer:- Option-A

Question56:-Antibody dependent enhancement is remarkably observed in the following

A:-Dengue serotype 3 infection is followed by serotype 2

B:-Dengue serotype 1 infection is followed by serotype 2

C:-Dengue serotype 3 infection is followed by serotype 4

D:-Dengue serotype 2 infection is followed by serotype 3

Correct Answer:- Option-B

Question57:-
Arboviruses are found in all the following families except

A:-Flavivridae

B:-Togaviridae

C:-Reoviridae

D:-Arenaviridae

Correct Answer:- Option-D

Question58:-All are true about Negri-bodies except

A:-Negri-body detection is pathognomonic of rabies

B:-Negri-bodies are intracytoplasmic eosinophilic inclusion bodies

C:-Absence of Negri-bodies rules out the diagnosis of rabies

D:-Immunohistochemistry using peroxidase labelled antibodies are more sensitive and specific than histological staining methods to demonstrate Negri-bodies

Correct Answer:- Option-C

Question59:-NACO strategic plan IIa (HIV diagnosis) is used for the following

A:-Blood transfusion and transplantation safety

B:-For the diagnosis of asymptomatic HIV patients

C:-For the diagnosis of HIV in symptomatic patients

D:-For sentinel surveillance of HIV infection

Correct Answer:- Option-D

Question60:-Which is the most common form of prion disease in humans ?

A:-Kuru

B:-Creutzfeldt-Jakob disease

C:-Scrapie

D:-Bovine spongiform encephalopathy

Correct Answer:- Option-B

Question61:-What type of parasite is *Gastrodiscoides hominis ?*

A:-Nematode

B:-Cestode

C:-Trematode

D:-Protozoan

Correct Answer:- Option-C

Question62:-Which of the following human parasite affects the red blood cells ?

A:-Acanthamoebiasis

B:-Babesiosis

C:-Balantidiasis

D:-Blastocytosis

Correct Answer:- Option-B

Question63:-Which of the following parasites is responsible for the cause of African sleeping sickness or Gambiense fever ?

A:-*Leishmania donovani*

B:-*Trypanosoma brucei*

C:-*Entamoeba hystolytica*

D:-*Trichomonas vaginalis*

Correct Answer:- Option-B

Question64:-Blackwater fever is a special manifestation of malaria caused by

A:-*Plasmodium. falciparum*

B:-*Plasmodium. malariae*

C:-*Plasmodium. ovale*

D:-*Plasmodium. vivax*

Correct Answer:- Option-A

Question65:-Infection of *Capillaria philippinensis* is acquired by

A:-Ingestion of undercooked meat.

B:-Consumption of infected undercooked fish.

C:-Active penetration of the skin by larva.

D:-Drinking water containing metacercaria

Correct Answer:- Option-B

Question66:-The definitive host of *Angiostrongylus cantonensis* is

A:-Human

B:-Cat

C:-Sheep

D:-Rat

Correct Answer:- Option-D

Question67:-The vector of *Onchocerca volvulus* is

A:-Black fly

B:-Mango fly

C:-Anopheles mosquito

D:-Culex mosquito

Correct Answer:- Option-A

Question68:-Crab is the intermediate host for the

A:-*Schistosoma mansoni*

B:-*Schistosoma japonicum*

C:-*Clonorchis sinensis*

D:-*Paragonimus westermanii*

Correct Answer:- Option-D

Question69:-The drug of choice for treating Trichomonas vaginalis in adolescents is

A:-Albendazole 400 mg once

B:-Metronidazole 2 g as a single dose

C:-Nitazoxanide 500 mg BID for 3 days

D:-Paromomycin 25-35 mg/kg/day for 7 days

Correct Answer:- Option-B

Question70:-Which of the following filarial nematode is known as the African eye worm ?

A:-*Loa loa*

B:-*Mansonella streptocerca*

C:-*Mansonella ozzardi*

D:-*Onchocerca volvulus*

Correct Answer:- Option-A

Question71:-A 47-year-old female presented to the OPD with complaints of fever and dry cough. Mantoux test was negative. Laboratory tests showed normal liver and renal function tests. On taking detailed history, the patient gave history of travel to South America where he went on bat cave excursions. What is the most likely diagnosis ?

A:-Histoplasmosis

B:-Leptospirosis

C:-Miliary Tuberculosis

D:-Pneumocystis jiroveci pneumonia

Correct Answer:- Option-A

Question72:-A 23-year-old truck driver presented to the casuality with altered mental sensorium. On initial workup, he was found to be HIV positive. Lumbar puncture was performed - CSF opening pressure was raised. Microscopy of the CSF sample revealed spherical budding yeast cells. Choose the best initial treatment option.

A:-Amphotericin B Deoxycholate with simultaneous ART initiation

B:-Liposomal Amphotericin B, Flucytosine and Fluconazole, defer ART for 4-6 weeks

C:-Liposomal Amphotericin B, Flucytosine only

D:-Liposomal Amphotericin B, Flucytosine and 2 Fluconazole and with simultaneous ART initiation

Correct Answer:- Option-B

Question73:-A 60-year-old patient, farmer by profession, presents with a painless swelling on his foot, with discharging sinuses. On careful examination of the purulent discharge, some grains were found. On microscopic examination of the crushed grain, wide hyphae are seen. What is the likely diagnosis ?

A:-Actinomycetoma

B:-Botryomycosis

C:-Eumycetoma

D:-Tuberculous osteomyelitis

Correct Answer:- Option-C

Question74:-A 20-year-old gardener developed a small, painless nodule on his hand which eventually ulcerated, with more lesions presenting proximal to the first one. How has he likely acquired the infection ?

A:-Blood transfusion

B:-Ingestion of spores

C:-Inhalation of spores

D:-Subcutaneous inoculation of spores

Correct Answer:- Option-D

Question75:-A 40-year-old male residing in Manipur presents to you with on and off diarrhea since the last 2 months and weight loss. On examination small, painless, umbilicated lesions are seen on face and trunk and generalized lymphadenopathy was seen. Giemsa stained smear of lymph node biopsy showed

intracellular and large ‘sausage like’ extracellular yeasts. What is the likely diagnosis ?

A:-Aspergillosis

B:-Candidiasis

C:-Histoplasmosis

D:-Talaromycosis

Correct Answer:- Option-D

Question76:-Which of the following parameters need to be monitored in a patient being treated for Mucromycosis ?

A:-Alanine transaminase

B:-Electrocardiogram

C:-Haemoglobin

D:-Serum creatinine

Correct Answer:- Option-D

Question77:-A 28-year-old male with AIDS, presented with osteomyelitis of the knee. A needle biopsy of the bone marrow was obtained, and the Giemsa stained smear revealed macrophages containing numerous intracellular yeast cells that were elliptical and approximately 2 × 4 µm. What is the most likely diagnosis ?

A:-Blastomycosis

B:-Candidiasis

C:-Cryptococcosis

D:-Histoplasmosis

Correct Answer:- Option-D

Question78:-A 55-year-old immunocompromised patient presented with cough for 10 days. The treating physician ordered for a sputum culture test for both bacterial and fungal culture. Sputum culture by SDA revealed budding yeast cells with broad base. What is the likely diagnosis ?

A:-Histoplasmosis

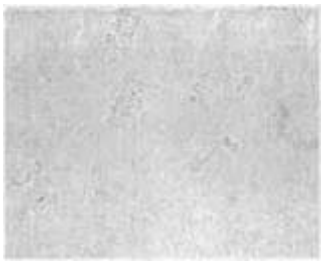
B:-Blastomycosis

C:-Coccidioidomycosis

D:-Paracoccidioidomycosis

Correct Answer:- Option-B

Question79:-A patient presented with complaints of dysphagia. On UGI Endoscopy a diagnosis of esophageal candidiasis was made. The organism obtained from the sample was cultured on a specialized media and the below finding were visible on microscopy of the culture. What phenomenon is shown below.



A:-Germ tube formation

B:-Spore formation

C:-Mould to yeast formation

D:-
Budding

Correct Answer:- Option-A

Question80:-A known diabetic presented to the emergency department with altered sensorium and was treated for diabetic ketoacidosis. He also complained of blurring of vision in his left eye and nasal congestion since the past 2 days. Microbiological examination of nasal crust reveal broad pauci septate hyphae. Which of the following fungus is responsible for this infection ?

A:-Candida

B:-Cryptococcus

C:-Aspergillus

D:-Apophysomyces

Correct Answer:- Option-D

Question81:-A young man aged 22 years, presents with reduced vision in the right eye for the past 4 days. He is a farmer by occupation, comes from a rural community and gives history of trauma to his right eye with a tree branch 6 days back. On examination, there is a 2 × 2 mm ulcerative lesion with rolled out margins and finger like projections on the cornea. Scraping from the corneal material showed sickle shaped macroconidia. What is the likely causative agent ?

A:-Aspergillus

B:-Fusarium

C:-Penicillium

D:-Trichophyton

Correct Answer:- Option-B

Question82:-A 31-year-old female presents with recurrent rhinitis, nasal discharge and bilateral nasal blockage since 2 years. She is a known asthmatic. On examination multiple ethmoidal polyps are noted with impacted secretions in the nasal cavities. Biopsy material is cultured which shows the growth of many hyphae and pseudhohyphae with dichotomous branching at 45 degree angle. Which is the most likely responsible organism ?

A:-Aspergillus

B:-Mucor

C:-Penicillium

D:-Rhizopus

Correct Answer:- Option-A

Question83:-First-line treatment for disseminated Emergomycosis includes

A:-Caspofungin

B:-Fluconazole high-dose therapy

C:-Liposomal amphotericin B induction followed by itraconazole maintenance

D:-Voriconazole monotherapy

Correct Answer:- Option-C

Question84:-A 35-year-old female with poorly controlled asthma presents with recurrent pulmonary infiltrates. On work up-
Mild Leukocytosis with eosinophilia Chest CT showing mucus plugging Total serum IgE = 800 IU/mL;
Serum A. fumigatus-specific IgE - Negative;

You are suspecting Allergic BronchoPulmonary Mycosis, what is the suitable next step to confirm the diagnosis ?

A:-A. fumigatus specific IgG

B:-Chest X-ray

C:-Serum Galactomannan

D:-Sputum cultures

Correct Answer:- Option-D

Question85:-A vitreous aspirate from a case of endophthalmitis reveals pseudohyphae on gram staining. Culture yielded Gram positive round to oval cells. Which of the following is the most likely etiological agent ?

A:-Aspergillus

B:-Rhizopus

C:-Candida

D:-Fusarium

Correct Answer:- Option-C

Question86:-A 9-year-old boy from a slum in Delhi presents with high-grade fever and abdominal pain. Blood culture grows *Salmonella Typhi*. Over the next 3 weeks, 24 similar cases are reported from the same locality. Stool samples from food handlers also yield *S. Typhi*. Local health authorities want to prove whether the outbreak strains are from a single clone or represent multiple circulating strains. Which method would provide the strongest evidence of clonal relatedness for public health decision-making ?

A:-Phage typing to compare strain susceptibility patterns

B:-Multi-Locus Sequence Typing (MLST) for database comparability

C:-Pulsed-Field Gel Electrophoresis (PFGE) for high outbreak resolution

D:-Whole genome sequencing for single-nucleotide resolution

Correct Answer:- Option-D

Question87:-A 58-year-old man with uncontrolled diabetes is admitted to the ICU with septic shock. He has a urinary catheter in place for 6 days. Blood cultures show *Pseudomonas aeruginosa*. The infection control team is asked to audit whether this represents a preventable hospital -acquired infection. Which statement is most correct in this audit context ?

A:-Since *Pseudomonas* is ubiquitous, the bacteremia is not considered preventable

B:-CAUTI prevention bundles (aseptic insertion, maintenance, timely removal) could reduce this risk

C:-Hand hygiene is not relevant here in preventing *Pseudomonas* infections

D:-This would not qualify as a sentinel event for infection surveillance

Correct Answer:- Option-B

Question88:-During a Biomedical waste audit in the Orthopaedics ward, inspectors notice that used Plaster of Paris (POP) casts and contaminated bandages from fracture patients are being discarded with general hospital waste. A junior resident argues that “since plasters are not infectious, they don’t need segregation.” According to Bio-Medical Waste Management Rules (2016, amended 2018), what is the correct disposal protocol for such orthopaedic plaster waste ?

A:-Place in yellow bags for incineration

B:-Collect in red bags for autoclaving

C:-Segregate in blue containers for recycling

D:-Discard with municipal solid waste if not visibly soiled

Correct Answer:- Option-A

Question89:-A 45-year-old woman undergoing induction chemotherapy for AML develops fever and hemoptysis after 12 days of profound neutropenia (ANC-absolute neutrophil count<200/µL). CT chest shows nodular infiltrates with halo sign. BAL cytology reveals septate hyphae with acute-angle branching. Which factor is the most decisive risk determinant for this invasive infection ?

A:-Prior influenza infection damaging airway epithelium

B:-Prolonged absolute neutrophil count <500/µL

C:-Use of Echinocandins for antifungal prophylaxis

D:-Corticosteroid therapy exceeding 2 g Prednisolone equivalent

Correct Answer:- Option-B

Question90:-A 15-month-old infant in India is brought for routine immunization. Parents request pneumococcal vaccine. The pediatrician explains that conjugate vaccines are given to infants, while polysaccharide vaccines are reserved for older adults and high-risk groups. Which statement is most correct regarding the immunology of these vaccines ?

A:-PPSV23 is superior to PCV13 in inducing memory B-cell responses in infants

B:-Conjugate vaccines overcome hypo-responsiveness in children < 2 years by inducing T-cell dependent responses

C:-PPSV23 provides more durable immunity than conjugate vaccines in adults > 65 years

D:-Conjugate vaccines have no effect on nasopharyngeal carriage or herd immunity

Correct Answer:- Option-B

Question91:-A 36-year-old man with chronic cough and weight loss presents to a DOTS center. Sputum is AFB positive. Clinicians want a rapid test that confirms TB and simultaneously detects rifampicin resistance within hours to guide treatment. Which diagnostic test best fulfills this requirement in a public health setting ?

A:-GeneXpert MTB/RIF assay

B:-LAMP (loop-mediated isothermal amplification)

C:-Line Probe Assay (LPA)

D:-MGIT culture followed by DST

Correct Answer:- Option-A

Question92:-A 9-month-old infant is brought for routine immunization. In many national schedules, the first dose of measles vaccine is given at around this age. The timing is chosen carefully to ensure an adequate immune response while also protecting the child as early as possible. Which immunological factor most limits the effectiveness of measles vaccination if it is administered too early in infancy ?

A:-Maternal antibody enhances vaccine response by providing immune priming

B:-Maternal antibody neutralizes vaccine antigen, reducing immunogenicity if given too early

C:-Cell-mediated immunity is unaffected by maternal antibody, so age is irrelevant

D:-A second dose at school entry is required only for children who missed the first

Correct Answer:- Option-B

Question93:-A clinical trial is being conducted to test a new antiretroviral drug in a remote tribal community. Most members of the community are illiterate and communicate only in their local dialect. The research team provides a written consent form in English and asks participants to give consent by signing with their thumb impression. No effort is made to explain the study orally or in a language the participants understand. In this situation, which ethical principle is most directly being violated ?

A:-Justice

B:-Beneficence

C:-Autonomy

D:-Non-maleficence

Correct Answer:- Option-C

Question94:-A microbiology research laboratory in India isolates a multidrug-resistant *Klebsiella pneumoniae* strain from a hospital outbreak. The team plans to study its pathogenicity and host immune response by inoculating mice and rabbits under BSL-3 conditions. The institutional biosafety committee recommends that in addition to biosafety clearance, prior approval from the statutory authority regulating animal experimentation must be obtained before starting trials. Which is this authority ?

A:-NCDC – National Center for Disease Control

B:-NCVBDC – National Center for Vector Borne Diseases Control

C:-CPCSEA – Committee for the Purpose of Control and Supervision of Experiments on Animals

D:-ICMR – Indian Council of Medical Research

Correct Answer:- Option-C

Question95:-A group of investigators are planning a Randomized Controlled Trial (RCT) to evaluate the efficacy of a new candidate tuberculosis vaccine in preventing culture-confirmed *Mycobacterium tuberculosis* disease among healthcare workers. They are concerned that variables such as BCG vaccination status, HIV seropositivity and occupational exposure intensity may act as confounders and distort the association between vaccination and disease outcome. The team wishes to adopt the method that offers the strongest protection against both known and unknown confounders at the design stage, rather than relying on post-hoc statistical adjustments. Choose the most appropriate method for above.

A:-Propensity score matching

B:-Stratified block allocation

C:-Randomization

D:-Multivariable regression adjustment

Correct Answer:- Option-C

Question96:-A 55-year-old woman with a history of hemodialysis for chronic kidney disease presents with high-grade fever, chills and hypotension. Suspecting catheter-related bloodstream infection, blood samples are inoculated into aerobic and anaerobic bottles and placed into the BacT/ALERT automated culture system. After 14 hours, the instrument signals positive. The BacT/ALERT system detects microbial growth by which mechanism ?

A:-Fluorescent quenching due to O_2 consumption

B:-Colorimetric sensor detecting CO_2 production

C:-Calorimetric detection of heat production

D:-Electrochemical monitoring of changes in redox potential

Correct Answer:- Option-B

Question97:-A 52-year-old man with end-stage renal disease undergoes thrice-weekly hemodialysis at a tertiary hospital. After one session, he develops chills, hypotension and fever without an identifiable source. Cultures from the dialysis machine are sterile, but dialysis water samples show high endotoxin levels. The infection-control committee reviews the dialysis unit. According to standards guidelines, which is the most appropriate microbiological method to monitor endotoxin contamination in dialysis water ?

A:-Limulus Amebocyte Lysate (LAL) assay

B:-Conventional Gram stain and bacterial culture of water samples

C:-ELISA for *Escherichia coli* 21 B antigen in water

D:-Chromogenic substrate assay for β-glucan detection

Correct Answer:- Option-A

Question98:-A 37-year-old construction worker presents with a 3-month history of progressive pain and swelling in the left hip, associated with low-grade fever and weight loss. He reports a travel history to the Great Lakes region of North America, where he worked outdoors handling soil. MRI pelvis shows destructive lesions of the femoral head with soft-tissue extension suggestive of osteomyelitis. A needle biopsy of the lesion is performed. Calcofluor white and Giemsa stain of this biopsy shows numerous yeast forms within macrophages, some demonstrating broad-based budding. Which of the following is the most likely etiological diagnosis ?

A:-Candidiasis

B:-Blastomycosis

C:-Coccidiomycosis

D:-Paracoccidiomycosis

Correct Answer:- Option-B

Question99:-A 10 year old boy presented to the OPD with history of fever and axillary lymphadenopathy for the past 5 day. The detailed history of the patient revealed flea bite on the left leg while working in rodent-infested farms. A smear was sent to the laboratory to perform a special staining. Which one of the following staining method would help in the identification of the suspected pathogen ?

A:-Albert staining

B:-Ziehl-Neelsen staining

C:-McFadyean’s staining

D:-Wayson staining

Correct Answer:- Option-D

Question100:-A 28-year-old laboratory technician accidentally sustains a deep needle-stick injury while drawing blood from a HBsAg-positive patient in the emergency department. The technician’s hepatitis B vaccination status is uncertain; he recalls “possibly one dose in college” but no documentation. His anti-HBs antibody titer is not immediately available and testing will take several days. As the infection control officer, you are asked to recommend immediate post-exposure management. Which is the most appropriate course of action ?

A:-No intervention now – wait for the technician’s anti-HBs titer result

B:-Administer HBV immunoglobulin (HBIG) only and decide on vaccine later

C:-Administer HBIG immediately and start a full course of hepatitis B vaccination

D:-Administer HBV vaccine only

Correct Answer:- Option-C