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ROLL NUMBER

WRITTEN TEST FOR THE POST OF TECH.ASST. (LAB) – A To B
MICROBIOLOGY

DATE: 19/03/2024

TIME: 9.30 to 10.30 AM

DURATION: 60 MINUTES

Total Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Write your Roll Number on the top of the Question Booklet and in the answer sheet.
2. Each question carries 1 mark.
3. There will not be any Negative Marking.
4. Write legibly the alphabet of the most appropriate answer (A, B, C or D) in the separate answer sheet provided.
5. Over-writing is not permitted.
6. Candidate should sign in the question paper and answer sheet.
7. No clarifications will be given.
8. Candidate should hand over the answer sheet to the invigilator before leaving the examination hall.

Signature of the Candidate

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Technical Assistant (Lab) MFCP 1
Microbiology

1. Which of the following is a differential staining technique?
 - a. India ink staining
 - b. Methylene blue staining
 - c. Gram staining
 - d. a and b
2. Which of the following molecular techniques uses a constant temperature for amplification of nucleic acids?
 - a. Polymerase chain reaction
 - b. Isothermal amplification
 - c. Automated nucleic acid extraction
 - d. GeneXpert system
3. The portion of the growth curve where rapid growth of bacteria is observed is known as
 - a. Lag phase
 - b. Logarithmic phase
 - c. Stationary phase
 - d. Decline phase
4. The standards and guidelines for performing antimicrobial susceptibility testing in microbiology laboratory is given by
 - a. CLSI
 - b. EUCAST
 - c. a and b
 - d. CDC
5. What is the mode-of-action of the antibiotic penicillin
 - a. Inhibits protein synthesis
 - b. Crosslinks with the DNA
 - c. Prevents cell wall formation
 - d. All the above
6. Indole test is done to detect the bacteria's ability to degrade which of the following amino acids?
 - a. Tryptophan
 - b. Threonine
 - c. Tyrosine
 - d. Leucine
7. Which of the following genes are implicated in MRSA?
 - a. Bla NDM
 - b. KPC
 - c. Mec A
 - d. All the above
8. A stool examination can be used to detect all organisms below, EXCEPT?
 - a. *Entamoeba histolytica*
 - b. Tapeworm
 - c. Hookworm
 - d. Plasmodium

9. What is unit for measurement of pH of a solution?
 - a. ml
 - b. g/dl
 - c. g/L
 - d. No unit
10. In RT-PCR, the starting material after extraction, is
 - a. RNA
 - b. DNA
 - c. Protein
 - d. Whole cell
11. Which of the following statements is false?
 - a. Brucellosis is a zoonosis
 - b. COVID 19 is caused by SARS CoV
 - c. Mycobacteria are aerobic bacilli
 - d. Normal saline is 0.9% NaCl
12. Chick- Martin test determines:
 - a. Minimum inhibitory concentration of an antibiotic
 - b. Titre of antigen-antibody reaction
 - c. Phenol coefficient of a disinfectant
 - d. Amount of enzyme needed for PCR mastermix
13. Bile esculin agar is a culture medium generally used to isolate and identify
 - a. Enterococci
 - b. Staphylococci
 - c. *Salmonella*
 - d. *Escherichia coli*
14. What are ESKAPE pathogens?
 - a. *Enterococcus faecalis*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, and *Enterobacter* species
 - b. *Enterococcus faecium*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, and *Enterobacter* species
 - c. *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Proteus mirabilis*, and *Enterobacter* species
 - d. *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, and *Enterobacter* species
15. Quellung reaction is associated with the demonstration of

<ol style="list-style-type: none"> a. Cell wall b. Capsule 	<ol style="list-style-type: none"> c. Flagella d. Spore
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16. Reaction of soluble antigen with antibody is

<ol style="list-style-type: none"> a. Precipitation b. Agglutination 	<ol style="list-style-type: none"> c. a and b d. Complement fixation test
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17. *Elizabethkingia meningoseptica* is
 - a. Gram-negative, nonfermenting, nonmotile, oxidase positive bacilli
 - b. Gram-negative, fermenting, nonmotile, oxidase positive bacilli
 - c. Gram-negative, nonfermenting, motile, oxidase negative bacilli
 - d. Gram-negative, fermenting, nonmotile, oxidase negative bacilli
18. In a typical PCR reaction, what can occur at temperature range of 55-70°C?

<ol style="list-style-type: none"> a. Extension b. Melting 	<ol style="list-style-type: none"> c. Denaturation d. Annealing
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19. Bacterial growth in a liquid medium may be demonstrated by
- Turbidity
 - Increase in optical density
 - Subculture
 - All the above
20. All are free-living amoebae EXCEPT
- Acanthamoeba*
 - Balamuthia mandrillaris*
 - Entamoeba histolytica*
 - Naegleria fowleri*
21. Which of the following fungi possess aseptate hyphae?
- Aspergillus*
 - Mucor*
 - Fusarium*
 - Penicillium*
22. Which of the following is a third generation cephalosporin?
- Ceftazidime
 - Cefuroxime
 - Cefalexin
 - All the above
23. Which of the following statements are TRUE?
- Aspergillus* has aseptate conidiophore
 - Penicillium* conidiophores are branched
 - Fusarium* produces crescent shaped macroconidia
 - All the above
24. Which of the following methods can be used for diagnosis of viral infections?
- Phase contrast microscopy
 - PCR
 - Dark ground microscopy
 - All of the above
25. HIV genome consists of
- Single stranded RNA
 - Double stranded RNA
 - Single stranded DNA
 - Double stranded DNA
26. Which among the following should be discarded in a yellow-coloured waste disposal bag?
- Needle
 - Broken glass
 - Face mask
 - Catheter tip
27. How much does 1% sodium hypochlorite equate to free available chlorine (ppm) concentration?
- 10 ppm
 - 100 ppm
 - 1000 ppm
 - 10000 ppm
28. 'Cold agglutination test' is used to identify disease caused by which among the following organism?
- Brucella abortus*
 - Mycoplasma pneumoniae*
 - Salmonella enterica*
 - Chlamydia pneumoniae*
29. The protective titer cut-off for anti-HBs antibody level is
- 10 mIU/ml
 - 50 mIU/ml
 - 100 mIU/ml
 - 1000 mIU/ml

30. The resolution of a compound light microscope is
- 2 nm
 - 2 μ m
 - 0.25 μ m
 - 0.15 nm
31. The swab tip used for collection of nasopharyngeal sample to diagnose respiratory virus infections, is made of
- Nylon
 - Rayon
 - Cotton
 - Alginate
32. Which among the following is a DNA virus?
- HIV
 - HBV
 - HCV
 - HTLV
33. What is the percentage of agar used in Lowenstein Jensen medium?
- 0%
 - 1%
 - 0.5%
 - 2%
34. Which of the following is NOT a fungal stain?
- Calcofluor white stain
 - Lactophenol cotton blue stain
 - Gomori's methenamine silver stain
 - Schaeffer-Fulton stain
35. Prozone phenomenon is due to
- Antigen excess
 - Antibody excess
 - Complement excess
 - Antigen depletion
36. What is the indicator used in MacConkey Agar medium
- Prussian blue
 - Methyl violet
 - Phenol red
 - Neutral red
37. Which of the following correctly describes the bacterial growth curve?
- Lag phase, Log phase, Stationary phase, phase of decline
 - Log phase, Lag phase, Stationary phase, phase of decline
 - Phase of decline, Log phase, Lag phase, Stationary phase
 - Log phase, Lag phase, phase of decline, Stationary phase
38. Antigenic shift and drift are used in context in which among the following viruses
- Respiratory syncytial virus
 - Influenza virus
 - Parainfluenza virus
 - SARS-CoV2 virus
39. In bacterial meningitis, which among the following changes are noticed in the cerebrospinal fluid?
- Low glucose, low protein and high cell count
 - Low glucose, high protein and low cell count
 - Low glucose, high protein and high cell count
 - High glucose, low protein and high cell count
40. The pH of Sabouraud's dextrose agar for cultivation of fungus is
- 4.4
 - 5.4
 - 6.4
 - 8.4
41. Which among the following is intrinsically resistant to carbapenems?
- Burkholderia cepacia*
 - Burkholderia pseudomallei*
 - Stenotrophomonas maltophilia*
 - Providencia rettgeri*

42. Which among the following is NOT part of the innate immune system?
- Natural Killer cell
 - Dendritic cell
 - T-lymphocyte
 - Macrophage
43. Which among the following is NOT a live vaccine?
- Varicella vaccine
 - Oral Polio vaccine
 - Hepatitis B vaccine
 - MMR vaccine
44. Which among the following is NOT an isothermal nucleic acid amplification technique?
- Strand displacement amplification
 - Recombinase polymerase amplification
 - Loop-mediated isothermal amplification
 - Branched DNA amplification
45. Which among the following is a non-motile bacteria?
- Morganella morganii*
 - Serratia marcescens*
 - Vibrio parahaemolyticus*
 - Shigella flexneri*
46. Which among the following helminth ova/egg is bile-stained ?
- Enterobius vermicularis*
 - Trichuris trichiura*
 - Ancylostoma duodenale*
 - Hymenolepis nana*
47. Which of the following is a random error in a Levey-Jennings Charting as per Westgard rules?
- 4_{1s}
 - 2_{2s}
 - 1_{3s}
 - 10_x
48. Which among the following is NOT a dematiaceous fungi?
- Wangiella dermatitidis*
 - Acremonium sp.*
 - Fonsecaea pedrosoi*
 - Cladophialophora bantiana*
49. Which among the following bacterial component is detected by the Limulus amoebocyte lysate (LAL) assay?
- Teichoic acid
 - Lipopolysaccharide
 - Muramic acid
 - Peptidyl transferase
50. Surface antigen escape mutants are described in which among the following viruses?
- HIV
 - HBV
 - HEV
 - HCV

Technical Assistant (Lab) MFCP 1 Microbiology

ANSWER KEY

1	c	21	b	41	c
2	b	22	a	42	c
3	b	23	d	43	c
4	c	24	b	44	d
5	c	25	a	45	d
6	a	26	c	46	b
7	c	27	d	47	c
8	d	28	b	48	b
9	d	29	a	49	b
10	a	30	c	50	b
11	b	31	a		
12	c	32	b		
13	a	33	a		
14	b	34	d		
15	b	35	b		
16	a	36	d		
17	a	37	a		
18	d	38	b		
19	d	39	c		
20	c	40	b		

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