MEDICAL TECHNOLOGY LICENSURE EXAM

PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY

PRACTICE EXAM QUESTION

400 QUESTIONS

TEST YOUR KNOWLEDGE AS IF YOU WERE TAKING A BOARD EXAM

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1. The primary chemical affected by the renin-angiotensin-aldosterone system is:
a. Chloride
b. Sodium
c. Potassium
d. Hydrogen

2. The fluid leaving the glomerulus has a specific gravity of:
a. 1.005
b. 1.010
c. 1.015
d. 1.020

3. What are the variables included in the Cockgroft and Gault formula for creatinine clearance?
1. Age
2. Sex
3. Urine creatinine
4. Body weight

a. 1, 2 and 3
b. 1 and 3
c. 1, 2 and 4
d. 1, 2, 3 and 4

4. The average total volume of urine produced by a normal adult every 24 hours is about:
a. 750 mL
b. 1200 mL
c. 2000 mL
d. 2400 mL

5. An abnormal decrease in urine production is called:
a. Anuria
b. Oliguria
c. Polyuria
d. Dysuria

6. Cloudiness in a freshly-voided urine could indicate the presence of:
a. Protein
b. Sugar
c. WBCs
d. Any of these

7. Which of these plasma substances is NOT normally filtered through the glomerulus in significant amounts?
a. Protein
b. Glucose
c. Creatinine
d. Urea

8. Which term is defined as a urine volume in excess of 2000 mL excreted over a 24-hour period?
a. Anuria
b. Oliguria
c. Polyuria
d. Hypersthenuria

9. which of the following will contribute to a specimen's specific gravity if it is present in a person's urine?
a. 50-100 RBC/hpf
b. 85 mg/dL glucose
c. 3+ amorphous phosphates
d. Moderate bacteria

10. Why is the first-voided morning urine specimen the most desirable specimen for routine urinalysis?
a. Most dilute specimen of the day
b. Less contamination by microorganisms
c. It can detect orthostatic proteinuria
d. Most concentrated specimen of the day

11. Freshly voided normal urine is usually clear; however, if it is alkaline, a white turbidity may be present due to:
a. Yeast cells
b. Uroerythrin
c. WBCs
d. Amorphous phosphates

12. A strong odor of cabbage in a urine specimen could indicate:
a. Methionine malabsorption
b. Trimethylaminuria
c. Phenylketonuria
d. Tyrosyluria

13. A specimen with a strong ammonia odor and a heavy white precipitate when it arrives in the laboratory may require:
a. Collection of a fresh specimen
b. Centrifugation
c. Dilution for specific gravity
d. Testing under a hood

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14. A correlation exists between a specific gravity of 1.050 and a:
a. 2+ protein
b. 2+ glucose
c. Radiographic dye infusion
d. First morning specimen

25. Which of the following is the major organic substance found in urine?
a. Sodium
b. Glucose
c. Chloride
d. Urea

26. A reagent test strip impregnated with an aromatic amine such as p-arsanilic acid or sulfanilamide may be used to detect which analyte
a. Bilirubin
b. Blood
c. Nitrite
d. Urobilinogen

27. What is the expected pH range of a freshly voided urine specimen?
a. 3.5-8.0
b. 3.5-9.0
c. 4.0-8.5
d. 4.5-8.0

28. False positive levels of 5-HIAA can be caused by a diet high in:
a. Bananas
b. Tomatoes
c. Pineapples
d. All of these

29. Blue diaper syndrome is associated with:
a. Lesch-Nyhan syndrome
b. Hartnup disease
c. Alkaptonuria
d. Dubin-Johnson syndrome

30. Hurler, Hunter and Sanfilippo syndrome are hereditary disorders affecting metabolism of:
a. Tryptophan
b. Purines
c. Mucopolysaccharides
d. Porphyrins

31. Uroporphyrinogen decarboxylase deficiency is associated with which of the following?
a. Acute intermittent porphyria (AIN)
b. Hereditary coproporphyria (HCP)
c. Congenital erythropoietic porphyria (CEP)
d. Porphyria cutanea tarda (PCT)

32. Urinary screening tests for mucopolysaccharides:
1. Acid albumin
2. CTAB
3. Cyanide-Nitroprusside
4. Nitroso-naphthol
a. 1 and 2
b. 2 only
c. 1, 2 and 3
d. 3 and 4

33. He discovered phenylketonuria from a mentally retarded child with a peculiar mousy odor to his urine:
a. Ivan Folling
b. Garrod
c. Cotugno
d. Frederik Dekkers

34. A clinically significant epithelial cell is the:
a. Cuboidal cell
b. Clue cell
c. Caudate cell
d. Squamous epithelial cell

35. When using the glass slide and coverslip method, which of the following might be missed if the coverslip is overflowed?
a. RBCs
b. WBCs
c. Casts
d. Bacteria

36. Which of the following should be used to reduce light intensity in bright-field microscopy?
a. Centering screws
b. Aperture diaphragm
c. Rheostat
d. Condenser aperture diaphragm

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37. The finding of dysmorphic RBCs is indicative of:
a. Renal calculi
b. Traumatic injury
c. Glomerular bleeding
d. Coagulation disorders

38. The primary component of urinary mucus is:
a. Albumin
b. Uromodulin
c. Goblet cells
d. Beta2-microglobulin

39. The purpose of the Hansel stain is to identify:
a. Neutrophils
b. Monocytes
c. Renal tubular cells
d. Eosinophils

40. What is the normal value for urinary eosinophils?
a. >10%
b. <1%
c. >1%
d. <10%

41. A disorder characterized by the disruption of the electrical charges that produce the tightly fitting podocyte barrier resulting in massive loss of proteins and lipids:
a. Alport syndrome
b. Nephrotic syndrome
c. IgA nephropathy
d. Lipid nephrosis

42. Visicoureteral reflux or the reflux of urine from the bladder back into the ureters may result to:
a. Acute glomerulonephritis
b. Cystitis
c. Acute pyelonephritis
d. Acute interstitial nephritis

43. The presence of renal tubular epithelial cells and casts is an indication of:
a. Acute interstitial nephritis
b. Chronic glomerulonephritis
c. Minimal change disease
d. Acute tubular necrosis

44. End-stage renal disease is characterized by all of the following EXCEPT:
a. Electrolyte imbalance
b. Azotemia
c. Hypersthenuria
d. Isosthenuria

45. Broad and waxy casts are most likely associated with:
a. Nephrotic syndrome
b. Acute renal failure
c. Chronic renal failure
d. Focal segmental glomerulosclerosis

46. It is described as a genetic disorder showing lamellated and thinning of glomerular basement membrane:
a. Goodpasture syndrome
b. Alport syndrome
c. Nephrotic syndrome
d. Weener’s granulomatosis

47. Casts are formed primarily in which portion of the kidney?
a. Distal convoluted tubule
b. Glomerulus
c. Loop of Henle
d. Proximal convoluted tubule

48. A parasite associated with a positive leukocyte esterase is:
a. Enterobius vermicularis
b. Trichomonas vaginalis
c. Schistosoma haematobium
d. Candida albicans

49. The hormone characteristically present in the blood of pregnant women and which, when its concentration in the blood reaches a certain point, also appears in the urine is:
a. Estradiol
b. Aldosterone
c. Progesterone
d. hCG

50. HCG is produced by which of the following?
a. Cytotrophoblast cells
b. Argentaffin cells
c. Endocervical glandular cells
d. Type II pneumocytes

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51. The most common composition of renal calculi is:
a. Calcium oxalate
b. Magnesium ammonium phosphate
c. Cystine
d. Uric acid

52. A renal calculi described as yellowish to brownish red in color with a moderately hard consistency is:
a. Cystine
b. Phosphate
c. Calcium oxalate
d. Uric acid

53. A renal calculi described as pale and friable is:
a. Cystine
b. Phosphate
c. Calcium oxalate
d. Uric acid

54. A stool specimen collected from an infant with diarrhea has a pH of 5.0. This result correlates with a:
a. Positive APT test
b. Negative trypsin test
c. Positive Clinitest
d. Negative occult blood test

55. What is the gold standard for fecal fat determination?
a. Van de Kamer titration
b. Van den Berg reaction
c. APT test
d, D-Xylose test

56. Which of the following pairings of stool appearance and cause does not match?
a. Pale, frothy: steatorrhea
b. Black, tarry: blood
c. Yellow-gray: bile duct obstruction
d. Yellow-green: barium sulfate

57. All of the following statements about CSF are true EXCEPT:
a. CSF is formed by ultrafiltration of plasma through the choroid plexus
b. CSF circulates in the subarachnoid space and ventricles of the brain
c. The chemical composition of CSF is similar to plasma
d. Reabsorption of CSF occurs via vessels in the sagittal sinus

58. All of the following are indication of CSF traumatic tap EXCEPT:
a. Clearing of fluid as it is aspirated
b. A clear supernatant after centrifugation
c. Xanthochromia
d. Presence of a clot in the sample

59. The term used to denote a high WBC count in the CSF is:
a. Empyema
b. Neutrophilia
c. Pleocytosis
d. Lymphocytosis

60. The limulus lysate test on CSF is a sensitive assay for:
a. Viral meningitis
b. Cryptococcal meningitis
c. Gram positive bacterial exotoxin
d. Gram negative bacterial endotoxin

61. A normal CSF glucose and lactate level is associated with which type of meningitis?
a. Viral meningitis
b. Bacterial meningitis
c. Fungal meningitis
d. Tubercular meningitis

62. The most common cause of male infertility is:
a. Mumps
b. Klinefelter’ssyndrome
c. Varicocele
d. Malignancy

63. Which of the following stains is used to determine sperm viability?
a. Eosin
b. Hematoxylin
c. Papanicolau
d. Methylene blue

64. Seminal fluid viscosity graded as 4 is described as:
a. Watery
b. Fair
c. Friable
d. Gel-like

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65. The sugar present in the seminal fluid in high concentration is:
a. Glucose
b. Lactose
c. Fructose
d. Sucrose

66. Maturation of spermatozoa takes place in the:
a. Sertoli cells
b. Seminiferous tubules
c. Epididymis
d. Seminal vesicles

67. Which test for FLM is least affected by contamination with hemoglobin and meconium?
a. Amniostat-FLM
b. Foam stability
c. Lamellar body count
d. L/S ratio

68. How are specimens for FLM testing delivered to and stored in the laboratory?
a. Delivered on ice and refrigerated or frozen
b. Immediately centrifuged
c. Kept at room temperature
d. Protected from light

69. The presence of a fetal neural tube disorder may be detected by:
a. Increased amniotic fluid bilirubin
b. Increased maternal serum alpha-fetoprotein
c. Decreased amniotic fluid phosphatidyl glycerol
d. Decreased maternal serum acetylcholinesterase

70. What type of tube for gastric fluid collection is inserted through the mouth?
a. Rehfuss tube
b. Levine tube
c. Diagnex tube
d. None of these

71. A gastric disorder characterized by achlorhydria due to the presence of anti-parietal cell antibodies:
a. Zollinger-Ellison disease
b. Helicobacter pylori infection
c. Pernicious anemia
d. Cystic fibrosis

72. All of the following may be associated with bronchial asthma EXCEPT:
a. Creola bodies
b. Curschmann’s spiral
c. Charcot-Leyden crystals
d. Pneumoliths

73. A sputum that is rusty-colored and filled with pus is associated with:
a. Congestive heart failure
b. Lobar pneumonia
c. Tuberculosis
d. Anthracosis

74. Rice bodies are called so because:
a. It was discovered by Dr. Rice
b. It resembles cooked rice
c. It resembles uncooked rice
d. It resembles polished rice

75. Lyme arthritis is caused by:
a. Borrelia recurrentis
b. Borrelia hermsii
c. Borrelia burgdorferi
d. Neisseria gonorrhoeae

76. CYFRA 21-1 is a tumor marker for:
a. Uterine cancer
b. Colon cancer
c. Lung cancer
d. Breast cancer

77. This is a sensitive test for the detection of intra-abdominal bleeding:
a. Peritoneal lavage
b. Bronchioalveolar lavage
c. Thoracic lavage
d. Pericardial lavage

78. What is the method of choice for preservation of routine urinalysis samples?
a. Boric acid
b. Formalin
c. Sodium fluoride
d. Refrigeration

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79. A urine specimen for routine urinalysis would be rejected by the laboratory because:
a. The specimen had been refrigerated
b. More than 50 mL was in the container
c. The label was placed on the side of the container
d. The specimen and accompanying request did not match

80. Which of the following is the preferred urine specimen for cytology studies?
a. Catheterized
b. First morning
c. Suprapubic aspiration
d. Three-glass collection

81. Following collection, urine specimens should be delivered to the laboratory promptly and tested within ___ hour(s)
a. 1
b. 2
c. 3
d. 4

82. All of the following changes occur in unpreserved urine EXCEPT:
1. Decreased glucose
2. Increased
3. Increased ketones
4. Increased clarity
5. Incr. urobilinogen pH
6. Increased bacteria

a. 3, 4 and 5
b. 1, 2 and 6
c. 1, 3 and 5
d. 1, 2, 3, 4, 5 and 6

83. Which of the following matches regarding specimen collection is/are incorrect?
1. Arthrocentesis ± synovial fluid
2. Amniocentesis ± amniotic fluid
3. Thoracentesis ± Ascitic fluid
4. Pericardiocentesis ± Pleural fluid

a. 1 and 2
b. 3 and 4
c. 1 and 3
d. 2 and 4

84. The most representative sample for fecal fat analysis is:
a. First morning
b. 3-day collection
c. 2-day collection
d. None of the above

85. Three labeled tubes of CSF specimen were sent to the laboratory. Which of these tubes will be used for cell counting?
a. Tube 1
b. Tube 2
c. Tube 3
d. Any of these

86. If seminal fluid fructose analysis will be delayed for more than 2 hours, the sample should be stored at what condition?
a. Refrigerator temperature
b. Frozen
c. Body temperature
d. Room temperature

87. It is the process that provides documentation of proper sample identification from the time of collection to the receipt of laboratory results:
a. Proficiency testing
b. Accreditation
c. Chain of custody
d. Pre-analytical phase

88. This is also known as the modulation contrast microscope:
a. Nomarski
b. Hoffman
c. Kohler
d. Phase-contrast

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89. It refers to the ability of a microscopic lens to distinguish two small objects that are a specific distance apart:
a. Parfocal
b. Birefringence
c. Illumination
d. Resolution

90. Which type of microscopy is used to aid in identification of cholesterol in oval fat bodies, fatty casts and crystals?
a. Polarizing
b. Phase-contrast
c. Interference-contrast
d. Dark-field

91. It is based on the principle that the frequency of a sound wave entering a solution changes in proportion to the density of the solution
a. Harmonic oscillation densitometry
b. Refractive index
c. Urinometer
d. Reagent strip

92. What is the minimum urine volume required by the Clinitek Atlas automated instrument?
a. 1 mL
b. 2 mL
c. 7 mL
d. 15 mL

93. All of the following are important to protect the integrity of reagent strips EXCEPT:
a. Storing in an opaque bottle
b. Storing at room temperature
c. Removing the dessicant from the bottle
d. Resealing the bottle after removing a strip

94. When a control is run, what information is documented?
a. The lot number
b. Expiration date of the control
c. The test results
d. All of the above

95. Given the following, identify the preanalytical errors:
1. Patient misidentification
2. Poor handwriting
3. Reagent deterioration
4. Insufficient urine volume
5. Delayed transport of urine to lab
6. Instrument malfunction

a. 1, 4 and 5
b. 2, 3 and 6
c. 1, 2 and 3
d. 4, 5 and 6

96. The best way to break the chain of infection is:
a. Decontamination
b. PPE
c. Aerosol prevention
d. Handwashing

97. An acceptable disinfectant for blood and body fluid decontamination is:
a. NaOH
b. Antimicrobial soap
c. H2O2
d. Sodium hypochlorite

98. The last thing to do when a fire is discovered is to:
a. Rescue persons in danger
b. Activate the alarm system
c. Close doors to other areas
d. Extinguish the fire if possible

99. A class ABC fire extinguisher contains:
a. Water
b. Dry chemicals
c. Sand
d. Acid

100. Correct procedure for handwashing, EXCEPT:
a. Wet hands with warm water
b. Thoroughly clean between fingers for at least 15 seconds
c. Rinse hands in an upward position
d. Turn off faucets with a clean paper towel

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1. In the urinalysis laboratory the primary source in the chain of infectionwould be:
A. Patients
B. Needlesticks
C. Specimens
D. Biohazardous waste

2. The best way to break the chain of infection is:
A. Hand sanitizing
B Personal protective equipment
C. Aerosol prevention
D. Decontamination

3. The current routine infection control policy developed by CDC and followed in all health-care settings is:
A. Universal Precautions
B. Isolation Precautions
C. Blood and Body Fluid Precautions
D. Standard Precautions

4. An employee who is accidentally exposed to a possi□ble blood-borne pathogen should immediately:
A. Report to a supervisor
B. Flush the area with water
C. Clean the area with disinfectant
D. Receive HIV prophylaxis

5. Personnel in the urinalysis laboratoryshould wear lab coats that:
A. Do not have buttons
B. Are fluid-resistant
C. Have short sleeves
D. Have full-length zippers

6. All of the following should be discarded in biohaz-ardous waste containers excep
A. Urine specimen containers
B. Towels used for decontamination
C. Disposable lab coats
D. Blood collection tubes

7. An employer who fails to provide sufficient glives for the employees may be fined by the:
A. CDC
B. NFPA
C. OSHA
D. FDA

8. An acceptable disinfectant for blood and body fluid decontamination is:
A. Sodium hydroxide
B. Antimicrobial soap
C. Hydrogen peroxide
D. Sodium hypochlorite

9. Proper handwashing includes all of the following except:
A. Using warm water
B. Rubbing to create a lather
C. Rinsing hands in downward position
D. Turning on the water with a paper towel

10. Centrifuging an uncapped specimen may produce a biological hazard in the form of:
A. Vectors
B. Sharps contamination
C. Aerosols
D. Specimen contamination

11. An employee who accidentally spills acid on his arm should immediately:
A. Neutralize the acid with a base
B. Hold the arm under running water for 15 minutes
C. Consult the MSDSs
D. Wrap the arm in gauze and go the emergency de□partment

12. When combining acid and water, ensure that:
A. Acid is added to water
B. Water is added to acid
C. They are added simultaneously
D. Water is slowly added to acid

13. An employee can learn the carcinogenic potentialof potassium chloride by consulting the:
A. Chemical hygienic plan
B. Material safety data sheets
C. OSHA standards
D. Urinalysis procedure manual

14. Employees should not work with radioisotopes if they are:
A. Wearing contact lenses
B. Allergic to iodine
C. Sensitive to latex
D. Pregnant

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15. All of the following are safe to do when removing the source of an electric shock except:
A. Pulling the person away from the instrument
B. Turning off the circuit breaker
C. Using a glass container to move the instrument
D. Unplugging the instrument

16. The acronym PASS refers to:
A. Presence of vital chemicals
B. Operation of a fire extinguisher
C. Labeling of hazardous material
D. Presence of radioactive substances

17. The system used by firefighters when a fire occurs in the laboratort is:
A. MSDS
B. RACE
C. NFPA
D. PASS

18. A class ABC fire extinguisher contains:
A. Sand
B. Water
C. Dry chemicals
D. Acid

19. The first thing to do when a fire is discovered is to:
A. Rescue the persons in danger
B. Activate the alarm system
C. Close the doors to other areas
D. Extinguish the fire if possible

20. If a red rash is observed after removing gloves, the employee:
A. May be washing her hands too often
B. May have developed a latex allergy
C. Should apply cortisone cream
D. Should not rub the hands so vigorously

21. Pipetting by mouth is:
A. Acceptable for urine but not serum
B. Not acceptable without proper training
C. Acceptable for reagents but not specimens
D. Not acceptable in the laboratory

22. The NFPA classification symbol contains information on all of the following except:
A. Fire Hazards
B. Biohazards
C. Reactivity
D. Health Hazards

23. The classification of a fire thst can be extinguished with water is:
A. Class A
B. Class B
C. Class C
D. Class D

24. Employers are required to provide free immunization for:
A. HIV
B. HTLV-1
C. HBV
D. HCV

25. A possible physical hazard in the hospital is:
A. Wearing closed-toe shoes
B. Not wearing jewelry
C. Having short hair
D. Running to answer the telephone

26. Quality assessment refers to:
A. Analysis of testing controls
B. Increased productivity
C. Precise control results
D. Quality of specimens and patient care

27. During laboratory accreditation inspections, procedure manuals are examined for the presence o
A. Critical values
B. Procedure references
C. Procedures for specimen preservation
D. All of above

28. As supervisor of the urinalysis laboratory, you have just adopted a new procedure. You should:
A. Put the package insert in the procedure manual
B. Put a complete, referenced procedure in the manual
C. Notify the microbiology department
D. Put a cost analysis study in the procedure manual

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29. The testing of sample from an outside agency and the comparison of results with participating laboratories is called:
A. External QC
B. Electronic QC
C. Internal QC
D. Proficiency testing

30. A color change that indicates that a sufficient amount of patient's specimen or reagent is added correctly to the test system would be an example of:
A. External QC
B. Equivalent QC
C. Internal QC
D. Proficiency testing

31. What steps are taken when the results of reagent strip QC are outside of the stated confidence limits?
A. Check the expiration date of the reagent strip
B. Run a new control
C. Open a new reagent strips container
D. All of the above

32. When a new bottle of QC material is opened, what information is placed on the label?
A. The supervisor's initials
B. The lot number
C. The date and the laboratory worker's initials
D. The time the bottle was opened

33. When a control is run, what information is documented?
A. The lot number
B. Expiration date of the control
C. The test results
D. All of the above

34. The reagent strip test for nitrite uses the:
A. Greiss reaction
B. Ehrlich reaction
C. Peroxidase reaction
D. Pseudoperoxidase reaction

35. Leaving excess urine on the reagent strip after removing it from the specimen will:
A. Cause run-over between reagent pads
B. Alter the color of the specimen
C. Cause reagents to leach from the pads
D. Not affect the chemical reactions

36. Failure to mix a specimen before inserting the reagent strip will primarily affect the:
A. Glucose reading
B. Blood reading
C. Leukocyte reading
D. Both B and C

37. Testing a refrigerated specimen that has not warmed to room temperature will adversely affect:
A. Enzymatic reactions
B. Dye-binding reactions
C. The sodium nitroprusside reaction
D. Diazo reactions

38. The reagent strip reaction that requires the longest reaction time is the:
A. Bilirubin
B. pH
C. Leukocyte esterase
D. Glucose

39. Quality control of reagent strips is performed:
A. Using positive and negative controls
B. When results are questionable
C. At least once every 24 hours
D. All of the above

40. All of the following are important to protect the integrity of reagent strips except:
A. Removing the desiccant from the bottle
B. Storing in an opaque bottle
C. Storing at room temperature
D. Resealing the bottle after removing a strip

41. The principle of the reagent strip test for pH is the:
A. Protein error of indicators
B. Greiss reaction
C. Dissociation of a polyelectrolyte
D. Double indicator reaction

42. A urine specimen with a pH of 9.0:
A. Indicates metabolic acidosis
B. Should be recollected
C. May contain calcium oxalate crystals
D. Is seen after drinking cranberry juice

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43. In the laboratory, a primary consideration associated with pH is:
A. Identifying urinary crystals
B. Monitoring vegetarian diets
C. Determining specimen acceptability
D. Both A and C

44. The principle of the protein error of indicators reaction is that:
A. Protein keeps the pH of the urine constant
B. Albumin accepts hydrogen ions from the indicator
C. The indicator accepts hydrogen ions from albumin
D. Albumin changes the pH of the urine

45. All of the following will cause false-positive protein reagent strip values except:
A. Microalbuminuria
B. Highly buffered alkaline urines
C. Delay in removing the reagent strip from the specimen
D. Contamination by quaternary ammonium compounds

46. A patient with a 2+ protein reading in the afternoon is asked to submit a first morning specimen. The second specimen has a negative protein reading. This patient is:
A. Positive for orthostatic proteinuria
B. Negative for orthostatic proteinuria
C. Positive for Bence Jones protein
D. Negative for clinical proteinuria

47. Testing for microalbuminuria is valuable for early detection of kidney disease and monitoring patients with:
A. Hypertension
B. Diabetes mellitus
C. Cardiovascular disease risk
D. All of the above

48. The primary chemical on the reagent strip in the Micral-Test for microalbumin binds to
A. Protein
B. Antihuman albumin antibody
C. Conjugated enzyme
D. Galactoside

49. All of the following are true for the ImmunoDip test for microalbumin except:
A. Unbound antibody migrates farther than bound antibody
B. Blue latex particles are coated with antihuman albumin antibody
C. Bound antibody migrates further than unbound antibody
D. It utilizes an immunochromographic principle

50. The principle of the protein-high pad on the Multistix Pro reagent strip is the:
A. Diazo reaction
B. Enzymatic dye-binding reaction
C. Protein error of indicators
D. Microalbumin-Micral-Test

51. Which of the following is not tested on the Multistix Pro reagent strip?
A. Urobilinogen
B. Specific gravity
C. Creatinine
D. Protein-high

52. The principle of the protein-low reagent pad on the Multistix Pro is the:
A. Binding of albumin to sulphonphthalein dye
B. Immunologic binding of albumin to antibody
C. Reverse protein error of indicators reaction
D. Enzymatic reaction between albumin and dye

53. The principle of the creatinine reagent pad on microalbumin reagent strips is the
A. Double indicator reaction
B. Diazo reaction
C. Pseudoperoxidase reaction
D. Reduction of a chromogen

54. The purpose of performing an albumin: creatinine ratio is to:
A. Estimate the glomerular filtration rate
B. Correct for hydration in random specimens
C. Avoid interference for alkaline urines
D. Correct for abnormally colored urines

55. A patient with a normal blood glucose and a positive urine glucose should be further checked for:
A. Diabetes mellitus
B. Renal disease
C. Gestational diabetes
D. Pancreatitis

56. The principle of the reagent strip tests for glucose is the:
A. Peroxidase activity of glucose
B. Glucose oxidase reaction
C. Double sequential enzyme reaction
D. Dye-binding of glucose and chromogen

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

57. All of the following may produce false-negative glu□cose reactions except:
A. Detergent contamination
B. Ascorbic acid
C. Unpreserved specimens
D. Low urine temperature

58. The primary reason for performing a Clinitest is to:
A. Check for high ascorbic acid levels
B. Confirm a positive reagent strip glucose
C. Check for newborn galactosuria
D. Confirm a negative glucose reading

59. The three intermediate products of fat metabolism include all of the following except:
A. Acetoacetic acid
B. Ketoacetic acid
C. ²-hydroxybutyric acid
D. Acetone

60. The most significant reagent strip test that is associated with a positive ketone result
A. Glucose
B. Protein
C. pH
D. Specific gravity

61. The primary reagent in the reagent strip test for ketones is:
A. Glycine
B. Lactose
C. Sodium hydroxide
D. Sodium nitroprusside

62. Ketonuria may be caused by all of the following except
A. Bacterial infections
B. Diabetic acidosis
C. Starvation
D. Vomiting

63. Urinalysis on a patient with severe back and abdominal pain is frequently performed to check for
A. Glucosuria
B. Proteinuria
C. Hematuria
D. Hemoglobinuria

64. The principle of the reagent strip test for blood is based on the:
A. Binding of heme and a chromogenic dye
B. Peroxidase activity of heme
C. Reaction of peroxide and chromogen
D. Diazo activity of heme

65. A speckled pattern on the blood pad of the reagent strip indicates:
A. Hematuria
B. Hemoglobinuria
C. Myoglobinuria
D. All of the above

66. The principle of the reagent strip test for bilirubin is the:
A. Diazo reaction
B. Ehrlich reaction
C. Greiss reaction
D. Peroxidase reaction

67. An elevated urine bilirubin with a normal urobilinogen is indicative of:
A. Cirrhosis of the liver
B. Hemolytic disease
C. Hepatitis
D. Biliary obstruction

68. The primary cause of a false-negative bilirubin reaction is
A. Highly pigmented urine
B. Specimen contamination
C. Specimen exposure to light
D. Excess conjugated bilirubin

69. The purpose of the special mat supplied with the Ictotest tablets is that
A. Bilirubin remains on the surface of the mat.
B. It contains the dye needed to produce color
C. It removes interfering substances.
D. Bilirubin is absorbed into the mat

70. The reagent in the Multistix reaction for urobilinogen is:
A. A diazonium salt
B. Tetramethylbenzidine
C. p-Dimethylaminobenzaldehyde
D. Hoesch reagent

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

71. The primary problem with urobilinogen tests using Ehrlich reagent is:
A. Positive reactions with porphobilinogen
B. Lack of specificity
C. Positive reactions with Ehrlich's reactive substances
D. All of the above

72. .All of the following can cause a negative nitrite reading except
A. Gram-positive bacteria
B. Gram-negative bacteria
C. Random urine specimens
D. Heavy bacterial infections

73. A positive nitrite test and a negative leukocyte esterase test is an indication of a:
A. Dilute random specimen
B. Specimen with lysed leukocytes
C. Vaginal yeast infection
D. Specimen older than 2 hours

74. All of the following can be detected by the leukocyte esterase reaction except:
A. Neutrophils
B. Eosinophils
C. Lymphocytes
D. Basophils

75. Screening tests for urinary infection combine the leukocyte esterase test with the test for:
A. pH
B. Nitrite
C. Protein
D. Blood

76. The principle of the leukocyte esterase reagent strip test uses a:
A. Peroxidase reaction
B. Double indicator reaction
C. Diazo reaction
D. Dye-binding technique

77. The principle of the reagent strip test for specific gravity uses the dissociation constant of a(n):
A. Diazonium salt
B. Indicator dye
C. Polyelectrolyte
D. Enzyme substrate

78. A specific gravity of 1.005 would produce the reagent strip color:
A. Blue
B. Green
C. Yellow
D. Red

79. Reagent strip-specific gravity readings are affected by:
A. Glucose
B. Radiographic dye
C. Alkaline urine
D. All of the above

80. Presence of meconium in amniotic fluid:
a. Blood-streaked
b. Yellow
c. Dark green
d. Dark red-brown

81. How are specimens for FLM testing delivered to and stored in the laboratory?
a. Delivered on ice and refrigerated
b. Immediately centrifuged
c. Kept at room temperature
d. Delivered in a vacuum tube

82. Amniotic fluid bilirubin is measured by
a. Turbidimetric method
b. Dye-binding method
c. Spectrophotometric analysis
d. Fluorometric analysis

83. A ΔA450 value that falls into Zone I indicates:
a. Normal finding without significant hemolysis
b. Moderate hemolysis
c. Severe hemolysis
d. High fetal risk

84. In the foam or shake test, amniotic fluid is mixed with:
a. 1% NaOH
b. 10% NaOH
c. 70% ethanol
d. 95% ethanol

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

85. When severe HDN is present, which of the following tests on the amniotic fluid would the physician NOT ORDER to determine whether the fetal lungs are mature enough to withstand a premature delivery?

a. AFP levels
b. Foam stability index
c. Lecithin/sphingomyelin ratio
d. Phosphatidylglycerol detection

86. Amniotic fluid specimens are placed in amber colored tubes prior to sending them to the laboratory to prevent the destruction of:

a. Alpha-fetoprotein
b. Bilirubin
c. Cytogenetics
d. Lecithin

88. Typical number of CSF tubes

a. Two
b. Five
c. Four
d. Three

89. A web-like pellicle in a refrigerated CSF specimen indicates

a. Tubercular meningitis
b. Multiple sclerosis
c. Primary CNS malignancy
d. Viral meningitis

90. A CSF total cell count is diluted with:

a. Distilled water
b. Normal saline
c. Acetic acid
d. Hypotonic saline

91. As little as 0.1 mL of CSF combined with one drop of _____ produces an adequate cell yield when processed with the cytocentrifuge

a. 10% albumin
b. 30% albumin
c. 1% HCl
d. 3% acetic acid

92. Fungal infection associated with increased eosinophils in CSF:

a. Blastomyces dermatitidis
b. Coccidioides immitis
c. Cryptococcus neoformans
d. Histoplasma capsulatum

93. CSF can be differentiated from serum by the presence of:

a. Albumin
b. Globulin
c. Prealbumin
d. Tau transferrin

94. The finding of oligoclonal bands in the CSF and not in the serum is seen with:

a. Multiple myeloma
b. CNS malignancy
c. Multiple sclerosis
d. Viral infections

95. Liquefaction of a semen specimen should take place within:

a. 1 hour
b. 2 hours
c. 3 hours
d. 4 hours

96. Semen is collected following a period of sexual abstinence of at least___ days to not more than ___ days.

a. At least 1 day to not more than 3 days
b. At least 2 days to not more than 7 days
c. At least 5 days to not more than 7 days
d. At least 7 days to not more than 10 days

97. Sperm production

a. Testes
b. Epididymis
c. Bulbourethral gland
d. Prostate gland

98. SPERM MOTILITY: slower speed, some lateral movement

a. 1.0
b. 2.0
c. 3.0
d. 4.0

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

99. The acrosomal cap should encompass approximately ___ of the head and cover approximately___ of the sperm nucleus.

a. Half of the head and covers half of the sperm nucleus
b. Half of the head and covers 2/3 of the sperm nucleus
c. Two-thirds of the head and covers half of the sperm nucleus
d. Two-thirds of the head and covers 2/3 of the sperm nucleus

100. Seminal fluid specimens can be screened for the presence of fructose using the resorcinol test that produces an _____ color when fructose is present

a. Black
b. Blue
c. Green
d. Orange

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

1. Type of Extinguisher for Class B fire
1. Water
2. Dry Chemical
3. Carbon Dioxide
4. Foam

A. 1, 2, 4
B. 2, 4
C. 2, 3, 4
D. 1, 4

2. All of the following should be discarded in biohazardous waste containers except:
A. Urine specimen containers
B. Towels used for decontamination
C. Disposable lab coats
D. Blood collection tubes

3. The acronym PASS refers to:
A. Presence of vital chemicals
B. Operation of a fire extinguisher
C. Labeling of hazardous material
D. Presence of radioactive substances

4. Shock and heat may deteriorate
A. 0
B. 1
C. 2
D. 3
E. 4

5. The formation of urine begins in the:
A. Nephron
B. Glomerulus
C. Ureter
D. Bladder

6. Which of the following is true about the first morning urine specimen?
A. It contains high levels of analytes and cellular elements.
B. It is preferred for culture and sensitivity testing.
C. It is used for substances affected by diurnal variation.
D. It is the most common type of specimen collected

7. Failure to call critical values
1. Preexamination
2. Examination
3. Postexamination

A. 1, 2
B. 1, 3
C. 2
D. 3

8. Monitoring whether the sample migrated through the test strip properly in lateral flow test methods is an example of:
A. External QC
B. Equivalent QC
C. Internal QC
D. Proficiency testing

9. In Stamey-Mears Test, which of the following test/s for urinary bladder infection?
I. VB1
II. VB2
III. EPS
IV. VB3

A. I, II
B. II, III
C. I
D. II

10. What is the required volume of urine for drug testing?
A. 30 – 45 mL
B. 10 – 15 mL
C. 60 mL
D. 50 mL

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

11. Imparts a black color to alkaline urine?
A. Phenindione
B. Phenazopyridine
C. Homogentisic acid
D. Nitrofurantoin

12. CLSI guidelines for microbiological urine testing recommend refrigeration of specimens at _____ or the use of chemical preservatives if the specimen cannot be processed within 2 hours of collection.
A. 2 °C to 8 °C
B. 4 °C to 8 °C
C. 3 °C to 5 °C
D. 1 °C to 5 °C

13. In reporting for SSA turbidity, a grade of 3+ indicates:
A. Distinct turbidity, with no granulation
B. Turbidity with granulation, no flocculation
C. Turbidity with granulation and flocculation
D. Clumps of protein

14. Protein value for 1+ grade in Sulfosalicylic Acid Precipitation Test:
A. <6 mg/dL
B. 6-30 mg/dL
C. 30-100 mg/dL
D. 100-200 mg/dL

15. Urine pH is:
A. An indicator of proteinuria
B. Helpful in the identification of some types of crystals in the urine
C. Unaffected by diet
D. Unchanged for each individual

16. RTE cell which is considered LARGER than other RTE cells, having a rectangular shape
A. DCT RTE cells
B. Collecting duct RTE cells
C. PCT RTE cells

17. Which of the following is a concentration test?
I. Specific Gravity
II. Osmometry
III. PAH Test
IV. Creatinine clearance

A. I
B. I, II
C. I, II, III
D. I, IV

18. A type of protein which is produced by the renal tubular epithelial cells; and proteins from prostatic, seminal, and vaginal secretions
A. Albumin
B. Uroerythrin
C. Tamm-Horsfall
D. Urobilin

19. Clinical proteinuria is indicated at
A. 10 mg/dL
B. 20 mg/dL
C. 30 mg/dL
D. 5 mg/dL

20. Which of the tubules is impermeable to water?
A. Proximal convoluted tubule
B. Descending loop of Henle
C. Ascending loop of Henle
D. Distal convoluted tubule

21. Final concentration of filtrate happens on:
A. PCT
B. DCT
C. Collecting Duct
D. Loop of Henle

22. Aldosterone acts on
A. PCT
B. DCT
C. Collecting Duct
D. Loop of Henle

23. Vasopressin/ADH acts on
A. PCT
B. DCT
C. Collecting Duct
D. Loop of Henle

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

24. For testing of Catecholamines what type of urine specimen should be collected?
A. 24 hour urine
B. First morning
C. Random
D. Fasting second morning

25. Used for culture and albumin
A. Boric Acid
B. Sodium Fluoride
C. Thymol
D. Formalin

26. False positive in Formalin
A. Blood
B. Urobilinogen
C. Leukocyte esterate
D. Bilirubin

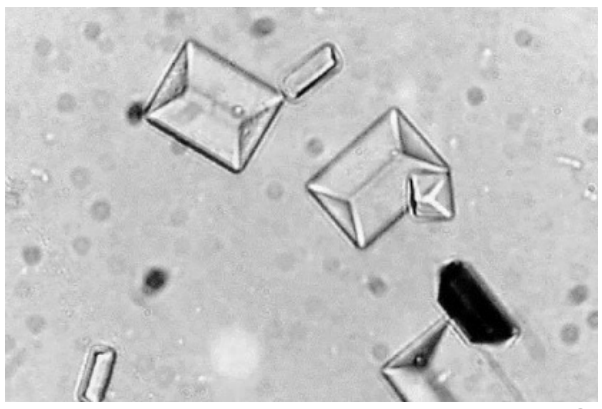
27. Positive nitrite corresponds to
A. 100,000 organism/mL
B. 100 organism/mL
C. 1,000 organism/mL
D. 10,000 organism/mL

28. Convert brightfield to dark field
A. Replace condenser
B. Two polarizing filters must be installed in a crossed configuration.
C. Two phase rings that appear as “targets” are placed in the condenser and the objective

29. Which of the following is the major organic substance found in urine?
A. Sodium
B. Potassium
C. Glucose
D. Urea

30. Speckled pattern on the blood pad of the reagent strip indicate
A. Hemoglobinuria
B. Myoglobinuria
C. Hematuria
D. A&B

31. Identify the crystal.



A. Struvite
B. Calcium phosphate
C. Dihydrate CaOx
D. Monohydrate CaOx

32. What is the most common crystal in alkaline urine?
A. Staghorn calculi
B. Struvite
C. Calcium phosphate
D. Calcium carbonate

33. Least common renal stone
A. Calcium oxalate
B. Cystine
C. Calcium phosphate
D. Triple phosphate

34. A reagent test strip impregnated witha diazonium salt such as diazotized 2,4-dichloroaniline may be used to determine which analyte?
A. Glucose
B. Ketone
C. Bilirubin
D. Hemoglobin

35. The final phase of degeneration that granular casts undergo is represented by which of the following casts?
A. Fine
B. Coarse
C. Cellular
D. Waxy

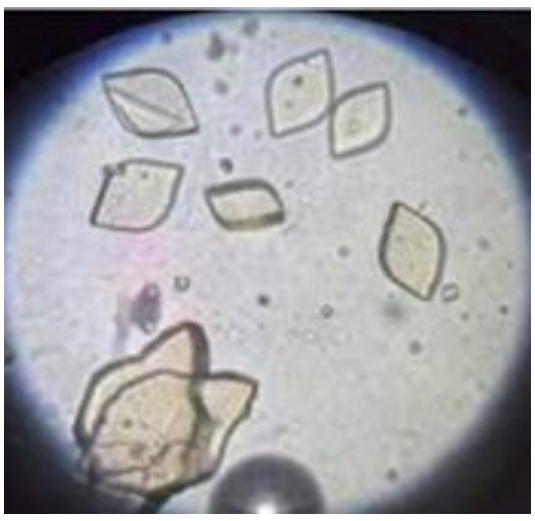
MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

36. When urine decomposes, the pH:
a. Becomes more alkaline
b. Becomes more acidic
c. Does not change
d. Causes crystals associated with acidic urine to form

37. The presence of hyaline indicates:
A. Acute glomerulonephritis
B. Acute pyelonephritis
C. Diabetic nephropathy
D. Strenuous exercise

38. Identify the crystal.



A. Uric acid
B. Amorphous phosphate
C. Amorphous urate
D. Calcium oxalate

39. Confused with sulfonamide when urine pH is in neutral
A. Calcium carbonate
B. Calcium phosphate
C. Amorphous phosphate
D. Amorphous urate

40. Identify the crystal according to the tests conducted:

Test	Uric Acid	Cystine
Ammonia	**Soluble**	**Soluble**
HCl	Insoluble	**Soluble**
Birefringence	**Positive**	**Negative**
Na nitroprusside Test	Negative (Colorless)	Positive (**Red-purple color**

A. Tyrosine
B. Cholesterol
C. Uric acid
D. Cystine

41. Similar with radiographic contrast media
A. Tyrosine
B. Cholesterol
C. Uric acid
D. Cystine

42. Seen in conjunction with leucine in specimens positive test for bilirubin.
A. Tyrosine
B. Cholesterol
C. Uric acid
D. Cystine

43. LDH pattern in CSF
A. 1>2>3>4>5
B. 2>1>3>4>5
C. 5>4>3>2>1
D. 4>3>2>1>5

44. Volume of gastric fluid
A. 50 – 75 mL
B. 5 – 10 mL
C. 100 – 150 mL
D. 1 – 5 mL

45. Choroid plexus produces ___ amount of CSF per hour
A. 30 mL
B. 40 mL
C. 20 mL
D. 50 mL

46. Daily control slide for bacteria (albumin contamination)
A. 0.3 mL saline + 3 drops of 30% albumin
B. 0.4 mL saline + 3 drops of 20% albumin
C. 0.2 mL saline + 2 drops of 30% albumin
D. 0.1 mL saline + 2 drops of 20% albumin

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

47. In cytocentrifuge, Addition of 50% Albumin is to:
A. Increases cell yield
B. Decreases cellular distortion
C. A & B
D. None of the above

48. For glucose, the plasma renal threshold is _____, and glucose appears in the urine when the plasma concentration reaches this level
A. 190 to 200 mg/dL
B. 150 to 250 mg/dL
C. 100 to 150 mg/dL
D. 160 to 180 mg/dL

49. Which of the following crystals are seen in urine of patients who are receiving chemotherapy due to leukemia
a. Ammonium biurates
b. Uric acid
c. Calcium oxalate
D. Leucine

50. The presence of tyrosine and leucine crystals together in a urine sediment usually indicates:
A. Liver disease
B. Hartnup disease
C. Lesch Nyhan syndrome
D. Renal tubular damage

51. The clarity of a well-mixed urine specimen that has few particulates, print easily seen through urine should be described as
A. Turbid
B. Hazy
C. Coudy
D. Clear

52. The presence of oligoclonal bands in CSF but not in serum is associated with:
A. Spina bifida
B. Multiple sclerosis
C. Reye's Syndrome
D. Hydrocephalus

53. Following an episode of hemoglobinuria, RTE cells may contain _____.
A. Bilirubin
B. Hemosiderin granules
C. Porphobilinogen
D. Myoglobin

54. Following an abnormal sperm motility test with a normal sperm count, what additional test might be ordered?
A. Zinc level
B. Fructose level
C. MAR test
D. Eosin-Nigrosin stain

55. Normal vitality requires ___ or more living cells and should correspond to the previously evaluated motility.
A. 30%
B. 40%
C. 50%
D. 60%

56. A normal quantitative level of fructose is equal to or _____ µmol per ejaculate
A. Greater than 12
B. Greater than 13
C. Greater than 14
D. Greater than 15

57. Specimens can be screened for the presence of fructose using the resorcinol test that produces an ____ color when fructose is present.
A. Orange
B. Bluish White
C. Red
D. Purple

58. A maximum of ___ mL of amniotic fluid is collected in sterile syringes.
A. 10 mL
B. 20 mL
C. 30 mL
D. 50 mL

59. Seminal fluid are collected following a period of sexual abstinence of:
A. 6 to 8 days
B. 3 to 5 days
C. 8 to 10 days
D. 2 to 7 days

60.

A. Leucine
B. Bilirubin
C. Tyrosine
D. Cholesterol

61. Nitrite in a urine specimen suggests the presence of:
A. White blood cells
B. Red blood cells
C. Bacteria
D. Yeasts

62. What condition is suggested by picture?

A. Glomerulonephritis
B. Improperly collected specimen
C. Pyelonephritis
D. Normal sample

63. The most frequently seen parasite in urine
A. Trichomonas vaginalis
B. Schistosoma haematobium
C. Wuchereria bancroftii
D. Enterobius vermicularis

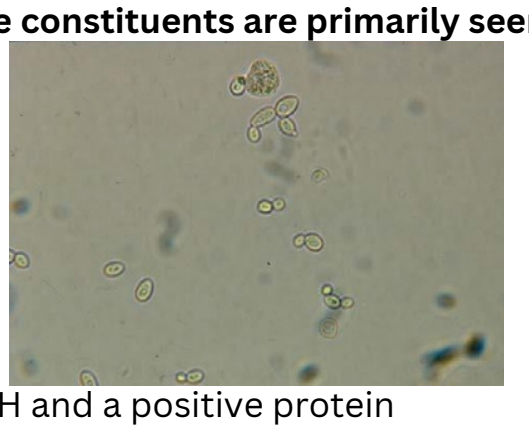
64. Which of the following is the best indicator of Reye syndrome for CSF?
A. Ammonia
B. Glutamine
C. ALT
D. Bilirubin

65. The _____ is the thickest part of the tail because it is surrounded by a mitochondrial sheath that produces the energy required by the tail for motility
A. Head
B. Acrosome
C. Neckpiece
D. Midpiece

66. Plotting the amniotic fluid OD on a Liley graph represents the severity of hemolytic disease of the newborn. A value that is plotted in zone II indicates what condition of the fetus?
A. No hemolysis
B. Mildly affected fetus
C. Moderately affected fetus that requires close monitoring
D. Severely affected fetus that requires intervention

67. A sweat chloride >70 mEq/L (70 mmol/L) is indicative of:
A. Multiple sclerosis
B. Muscular dystrophy
C. Respiratory distress syndrome
D. Cystic fibrosis

68. These constituents are primarily seen in urine with an:



A. Acid pH and a positive protein
B. Alkaline pH and bacteria
C. Acid pH and a positive glucose
D. Alkaline pH and a positive protein

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

69. Which of the following can be used to identify a fluid as CSF?
A. Oligoclonal bands
B. Xanthochromia
C. Transferrin t protein
D. Absence of glucose

70. What is added to synovial fluid to determine the viscosity?
A. Sodium hydroxide
B. Acetic acid
C. Hydrochloric acid
D. Hyaluronic acid

71. A physician attempts to aspirate a knee joint and obtains 0.1 mL of slightly bloody fluid. Addition of acetic acid results in turbidity and a clot. This indicates that:
A. The fluid is synovial fluid
B. The specimen is not adequate
C. Red blood cells caused a false-positive reaction
D. Plasma was obtained

72. Sperm are usually counted in the four corner and center squares of the large center square. Both sides of the hemocytometer are loaded and allowed to settle for 3 to 5 minutes; then they are counted, and the counts should agree within _____
A. Agree within 10%
B. Agree within 11%
C. Agree within 12 %
D. Agree within 13 %

73. The presence of rice bodies in a synovial fluid is strongly associated with:
A. Gouty arthritis
B. Rheumatoid arthritis
C. Traumatic collection
D. Infection wtih Staphylococcus aureus

74. The most likely cause of increased neutrophils is a pericardial fluid exudate is _____.
A. Tuberculosis
B. Bacterial endocarditis
C. Cardiac puncture
D. Pneumonia

75. The most sensitive fecal enzyme test for the diagnosis of pancreatic insufficiency measures_____.
A. Lipase
B. Trypsin
C. Elastase I
D. Chymotrypsin

76. CSF lactate is used to verify cases of which of the following?
A. Multiple sclerosis
B. Bacterial meningitis
C. Reye's syndrome
D. Tertiary syphilis

77. Synovial fluid from a 68-year-old male reveals rhombic crystals with weak positive birefringence when viewed using polarizing microscopy. These crystals can be identified as:
A. Cholesterol
B. Hydroxyapatite
C. Calcium pyrophosphate dihydrate
D. Monosodium urate

78. Most frequently seen cell in BAL
A. Macrophage
B. Lymphocyte
C. Eosinophil
D. Mast cells

79. Acetylcholinesterase activity may be measured on amniotic fluid when a positive alpha□fetoprotein result is obtained to evaluate for:
A. Fetal lung maturity
B. Neural tube defects
C. Respiratory distress syndrome
D. Hemolytic disease of the newborn

80. Which is the reference method for determining fetal lung maturity?
A. L/S ratio
B. Urinary estriol
C. Amniotic fluid bilirubin
D. Human placental lactogen

81. Which pair does not match with respect to amniotic fluid?
A. Dark green - hemolytic disease of the newborn
B. Dark red-brown - fetal death
C. Colorless - normal
D. Blood-streaked - traumatic collection

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

82. False-positive results can occur for fecal occult blood due to ingestion of:
A. Ascorbic acid
B. Horseradish
C. Acetaminophen
D. Blueberries

83. Synovial fluid crystals associated with inflammation in dialysis patients are:
A. Calcium pyrophosphate dihydrate
B. Calcium oxalate
C. Corticosteroid
D. Monosodium urate

84. Stool specimens that appear ribbon-like are indicative of which condition?
A. Colitis
B. Malignancy
C. Bile duct obstruction
D. Intestinal constriction

85. A build-up of fluid in a body cavity is called a(n):
A. Metastasis
B. Exudate
C. Effusion
D. Transudate

86. All of the following proteins are normally present in the CSF except for
A. Albumin
B. Fibrinogen
C. Transthyretin
D. Transferrin

87. Amniotic fluid for fetal lung maturity testing should be preserved _____.
A. In the refrigerator
B. At room temperature
C. In a dark container
D. At 37 C

88. A web-like pellicle in a refrigerated CSF specimen indicates
A. Tubercular meningitis
B. Multiple sclerosis
C. Primary CNS malignancy
D. Viral meningitis

89. Most commonly used dilution in sperm count
A. 1:5
B. 1:10
C. 1:15
D. 1:20

90. A positive amine (Whiff) test is observed in which of the following syndromes?
A. Bacterial vaginosis
B. Vulvovaginal candidiasis
C. Atrophic vaginitis
D. Desquamative inflammatory vaginitis

91. The protein present in vaginal secretions that can identify patients who are at risk for preterm delivery is:
A. Human chorionic gonadotropin
B. Estrogen
C. PAMG-1
D. Fetal fibronectin

92. What calculation is used to determine if there is a breach in the blood-brain barrier?
A. IgG index
B. CSF/serum albumin index
C. fluid/serum LD ratio
D. albumin gradient

93. Sysmex UF series, the DNA within the cells is stained by the orange dye:
A. Carbocyanine
B. Phenathridine
C. Coomassie brilliant blue
D. Bromcresol green

94. What is the preferred gastric stimulant?
A. Histamine
B. Histalog
C. Insulin
D. Pentagastrin

95. Normal lymphocyte count in bronchoalveolar lavage (BAL):
A. Less than 1%
B. Less than 3%
C. 1 to 15%
D. 56 to 80%

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

96. Before performing a Gram stain on CSF, the specimen must be:
A. Filtered
B. Warmed to 37C
C. Centrifuged
D. Mixed

97. Which of the following tests is a specific measureof glomerular filtration?
A. p-Aminohippuric acid (PAH) clearance
B. Fishberg concentration test
C. Mosenthal dilution test
D. Cystatin C

98. What is the most common cause of male infertility?
A. Mumps
B. Klinefelter's syndrome
C. Varicocele
D. Malignancy

99. In which condition is the highest level of serum gastrin usually seen?
A. Atrophic gastritis
B. Pernicious anemia
C. Z–E syndrome
D. Cancer of the stomach

100. A quantitative serum hCG is ordered on a male patient. The technologist should:
A. Perform the test and report the result
B. Request that the order be cancelled
C. Perform the test and report the result if negative
D. Perform the test and report the result only if greater than 25 IU/L

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

1. The best way to break the chain of infection is:
A. Hand sanitizing
B. Personal protective equipment
C. Aerosol prevention
D. Decontamination

2. All of the following should be discarded in biohazardous waste containers except:
A. Urine specimen containers
B. Towels used for decontamination
C. Disposable lab coats
D. Blood collection tubes

3. Employees should not work with radioisotopes if they are
A. Wearing contact lenses
B. Allergic to iodine
C. Varicocele
D. Malignancy

4. The acronym PASS refers to:
A. Presence of vital chemicals
B. Operation of a fire extinguisher
C. Labeling of hazardous material
D. Presence of radioactive substances

5. If a red rash is observed after removing gloves, the employee:
A. May be washing her hands too often
B. May have developed a latex allergy
C. Should apply cortisone cream
D. Should not rub the hands so vigorously

6. The average daily output of urine is:
A. 200 mL
B. 500 mL
C. 1200 mL
D. 2500 mL

7. An unidentified fluid is received in the laboratory with a request to determine whether the fluid is urine or another body fluid. Using routine laboratory tests, what tests would determine that the fluid is most probably urine?
A. Glucose and ketones
B. Urea and creatinine
C. Uric acid and amino acids
D. Protein and amino acids

8. The primary advantage of a first morning specimen over a random specimen is that it:
A. Is less contaminated
B. Is more concentrated
C. Is less concentrated
D. Has a higher volume

9. The primary cause of unsatisfactory results in an unpreserved routine specimen not tested for 8 hours is
A. Bacterial growth
B. Glycolysis
C. Decreased pH
D. Chemical oxidation

10. Labels for urine containers are:
A. Attached to the container
B. Attached to the lid
C. Placed on the container prior to collection
D. Not detachable

11. A urine specimen may be rejected by the laboratory for all of the following reasons except the fact that the:
A. Requisition states the specimen is catheterized
B. Specimen contains toilet paper
C. Label and requisition do not match
D. Outside of the container has fecal material Contamination

12. A cloudy specimen received in the laboratory may have been preserved using:
A. Boric acid
B. Chloroform
C. Refrigeration
D. Formalin

13. The most sterile specimen collected is a:
A. Catheterized
B. Midstream clean-catch
C. Three-glass
D. Suprapubic aspiration

14. Which of the following would not be given to a patient prior to the collection of a midstream clean-catch specimen?
A. Sterile container
B. Iodine cleanser
C. Antiseptic towelette
D. Instructions

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

15. All of the following are characteristics of recommended urine containers except:
A. A flat bottom
B. A capacity of 50 mL
C. A snap-on lid
D. Are disposable

16. A patient presenting with polyuria, nocturia, polydipsia, and a low urine specific gravity is exhibiting symptoms of:
A. Diabetes insipidus
B. Diabetes mellitus
C. Urinary tract infection
D. Uremia

17. A patient with oliguria might progress to having:
A. Nocturia
B. Polyuria
C. Polydipsia
D. Anuria

18. Prolonged exposure of a preserved urine specimen to light will cause:
A. Decreased glucose
B. Increased cells and casts
C. Decreased bilirubin
D. Increased bacteria

19. Which of the following would be least affected in a specimen that has remained unpreserved at room temperature for more than 2 hours?
A. Urobilinogen
B. Ketones
C. Protein
D. Nitrite

20. Substances that show diurnal variation in their urinary excretion pattern are best evaluated using a
A. first morning specimen.
B. midstream “clean catch” specimen
C. random specimen.
D. timed collection

21. A 25-year-old woman complains of painful urination and is suspected of having a urinary tract infection. Which of the following specimens should be collected for a routine urinalysis and urine culture?
A. First morning specimen
B. Timed collection
C. Midstream “clean catch” specimen
D. Random specimen

22. The renin-angiotensin-aldosterone system is responsible for all of the following except:
A. Vasoconstriction of the afferent arteriole
B. Vasoconstriction of the efferent arteriole
C. Reabsorbing sodium
D. Releasing aldosterone

23. The primary chemical affected by the renin□angiotensin□aldosterone system
A. Chloride
B. Sodium
C. Potassium
D. Hydrogen

24. The fluid leaving the glomerulus has a specific gravity of:
A. 1.005
B. 1.010
C. 1.015
D. 1.020

25. For active transport to occur, a chemical:
A. Must combine with a carrier protein to create electrochemical energy
B. Must be filtered through the proximal convoluted tubule
C. Must be in higher concentration in the filtrate than in the blood
D. Must be in higher concentration in the blood than in the filtrate

26. Which of the tubules is impermeable to water?
A. Proximal convoluted tubule
B. Descending loop of Henle
C. Ascending loop of Henle
D. Distal convoluted tubule

27. Decreased production of ADH:
A. Produces a low urine volume
B. Produces a high urine volume
C. Increases ammonia excretion
D. Affects active transport of sodium

28. Clearance tests used to determine the glomerular filtration rate must measure substances that are:
A. Not filtered by the glomerulus
B. Completely reabsorbed by the proximal convoluted tubule
C. Secreted in the distal convoluted tubule
D. Neither reabsorbed or secreted by the tubules

29. Variables that are included in the MDRD-IDSM estimated creatinine clearance calculations include all of the following except:
A. Serum creatinine
B. Weight
C. Age
D. Gender

30. The ability of a solute to cross the glomerular filtration barrier is determined by its
1. molecular size.
2. molecular radius.
3. electrical charge.
4. plasma concentration.

A. 1, 2, and 3 are correct.
B. 1 and 3 are correct.
C. 4 is correct.
D. All are correct.

31. Which of the following substances is secreted into the tubular lumen to eliminate hydrogen ions?
A. Ammonia (NH3)
B. Ammonium ions (NH4+)
C. Disodium phosphate (Na2HPO4)
D. Monosodium phosphate (NaH2PO4)

32. The final concentration of the urine is determined within the
A. collecting ducts.
B. distal convoluted tubules.
C. loops of Henle.
D. proximal convoluted tubules.

33. Specimens that contain hemoglobin can be visually dis□tinguished from those that contain RBCs because
A. Hemoglobin produces a clear, yellow specimen
B. Hemoglobin produces a cloudy pink specimen
C. RBCs produce a cloudy red specimen
D. RBCs produce a clear red specimen

34. A patient with a viscous orange specimen may have been:
A. Treated for a urinary tract infection
B. Taking vitamin B pills
C. Eating fresh carrots
D. Taking antidepressants

35. The presence of a pink precipitate in a refrigerated specimen is caused by:
A. Hemoglobin
B. Urobilin
C. Uroerythrin
D. Beets

36. A urine specific gravity measured by refractometer is 1.029, and the temperature of the urine is 14°C. The specific gravity should be reported as:
A. 1.023
B. 1.027
C. 1.029
D. 1.032

37. The microscopic of a clear red urine is reported as many WBCs and epithelial cells. What does this suggest?
A. Urinary tract infection
B. Dilute random specimen
C. Hematuria
D. Possible mix-up of specimen and sediment

38. A single substance can impart different colors to urine depending on the
1. amount of the substance present.
2. storage conditions of the urine.
3. pH of the urine.
4. structural form of the substance.

A. 1, 2, and 3 are correct.
B. 1 and 3 are correct
C. 4 is correct.
D. All are correct.

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

39. Which of the following methods used to determine the specific gravity of urine does not detect the presence of urine protein or glucose?
A. Harmonic oscillation densitometry
B. Reagent strip
C. Refractometry
D. Urinometry

40. Which of the following specific gravity values is physiologically impossible?
A. 1.000
B. 1.010
C. 1.020
D. 1.030

41. A discrepancy between the urine SG determined by measuring refractive index and urine osmolality would be most likely to occur:
A. After catheterization of the urinary tract
B. In diabetes mellitus
C. After an intravenous pyelogram (IVP)
D. In uremia

42. Which statement best describes the clinical utility of tests for microalbuminuria?
A. Testing may detect early renal involvement in diabetes mellitus
B. Microalbuminuria refers to a specific subfraction of albumin found only in persons with diabetic nephropathy
C. A positive test result indicates the presence of orthostatic albuminuria
D. Testing should be part of the routine urinalysis

43. The normal renal threshold for glucose is:
A. 70–85 mg/dL
B. 100–115 mg/dL
C. 130–145 mg/dL
D. 165–180 mg/dL

44. In which of the following conditions is glycosuria most likely?
A. Addison's disease
B. Hypothyroidism
C. Pregnancy
D. Hypopituitarism

45. A positive glucose oxidase test and a negative test for reducing sugars indicates:
A. True glycosuria
B. False-positive reagent strip test
C. False-negative reducing test caused by ascorbate
D. Galactosuria

46. AAA is detected in urine by reaction with:
A. Sodium nitroprusside
B. o-Toluidine
C. m-Dinitrobenzene
D. m-Dinitrophenylhydrazine

47. Which of the following statements regarding the classical nitroprusside reaction for ketones is true?
A. The reaction is most sensitive to acetone
B. Nitroprusside reacts with acetone, AAA, and β-hydroxybutyric acid
C. It may be falsely positive in phenylketonuria
D. The reaction is recommended for diagnosing Ketoacidosis

48. Which of the following conditions is associated with a negative blood test and an increase in urine urobilinogen?
A. Calculi of the kidney or bladder
B. Malignancy of the kidney or urinary system
C. Crush injury
D. Extravascular hemolytic anemia

49. A moderate-positive blood test and trace protein test are seen on the dry reagent strip, and 11–20 red blood cells per high-power field are seen in the microscopic exam. These results are most likely caused by which of the following?
A. Transfusion reaction
B. Myoglobinuria
C. Intravascular hemolytic anemia
D. Recent urinary tract catheterization

50. Which of the following reagents is used to detect urobilinogen in urine?
A. p-Dinitrobenzene
B. p-Aminosalicylate
C. p-Dimethylaminobenzaldehyde
D. p-Dichloroaniline

51. The primary reason for performing a Clinitest is to:
A. Check for high ascorbic acid levels
B. Confirm a positive reagent strip glucose
C. Check for newborn galactosuria
D. Confirm a negative glucose reading

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

52. An elevated urine bilirubin with a normal urobilinogen is indicative of:
A. Cirrhosis of the liver
B. Hemolytic disease
C. Hepatitis
D. Biliary obstruction

53. The purpose of the special mat supplied with the Ictotest tablets is that:
A. Bilirubin remains on the surface of the mat.
B. It contains the dye needed to produce color.
C. It removes interfering substances.
D. Bilirubin is absorbed into the mat.

54. Screening tests for urinary infection combine the leukocyte esterase test with the test for:
A. pH
B. Nitrite
C. Protein
D. Blood

55. A positive nitrite test and a negative leukocyte esterase test is an indication of a:
A. Dilute random specimen
B. Specimen with lysed leukocytes
C. Vaginal yeast infection
D. Specimen older than 2 hours

56. When urine sediment is viewed, stains and various microscopic techniques are used to
1. enhance the observation of fine detail.
2. confirm the identity of suspected components.
3. differentiate formed elements that look alike.
4. facilitate the visualization of low-refractile components.

A. 1, 2, and 3 are correct.
B. 1 and 3 are correct.
C. 4 is correct.
D. All are correct.

57. The microscopic identification of hemosiderin is enhanced when the urine sediment is stained with
A. Gram stain.
B. Hansel stain.
C. Prussian blue stain.
D. Sudan III stain

58. When the laboratorian performs the microscopic examination of urine sediment, which of the following are enumerated using low-power magnification?
A. Bacteria
B. Casts
C. Red blood cells
D. Renal tubular cells

59. A urine sediment could have which of the following formed elements and still be considered “normal”?
A. Two or fewer hyaline casts
B. Five to 10 red blood cells
C. A few bacteria
D. A few yeast cells

60. Which description of sediment with Sternheimer–Malbin stain is correct?
A. Transitional epithelium: cytoplasm pale blue, nucleus dark blue
B. Renal epithelium: cytoplasm light blue, nucleus dark purple
C. Glitter cells: cytoplasm dark blue, nucleus dark purple
D. Squamous epithelium: cytoplasm pink, nucleus pale blue

61. A 5-mL urine specimen is submitted for routine urinalysis and analyzed immediately. The SG of the sample is 1.012 and the pH is 6.5. The dry reagent strip test for blood is a large positive (3+) and the microscopic examination shows 11–20 RBCs per HPF. The leukocyte esterase reaction is a small positive (1+), and the microscopic examination shows 0–5 WBCs per HPF. What is the most likely cause of these results?

A. Myoglobin is present in the sample
B. Free hemoglobin is present
C. Insufficient volume is causing microscopic results to be underestimated
D. Some WBCs have been misidentified as RBCs

62. Which of the following statements regarding RBCs in the urinary sediment is true?
A. Yeast cells will lyse in dilute acetic acid but RBCs will not
B. RBCs are often swollen in hypertonic urine
C. RBCs of glomerular origin often appear dysmorphic
D. Yeast cells will tumble when the cover glass is touched but RBCs will not

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

63. Renal tubular epithelial cells are shed into the urine in largest numbers in which condition?
A. Malignant renal disease
B. Acute glomerulonephritis
C. Nephrotic syndrome
D. Cytomegalovirus (CMV) infection of the kidney

64. Oval fat bodies are often seen in:
A. Chronic glomerulonephritis
B. Nephrotic syndrome
C. Acute tubular nephrosis
D. Renal failure of any cause

65. Which condition promotes the formation of casts in the urine?
A. Chronic production of alkaline urine
B. Polyuria
C. Reduced filtrate formation
D. Low urine SG

66. The mucoprotein that forms the matrix of a hyaline cast is called:
A. Bence–Jones protein
B. β-Microglobulin
C. Tamm–Horsfall protein
D. Arginine-rich glycoprotein

67. A sediment with moderate hematuria and RBC casts most likely results from:
A. Chronic pyelonephritis
B. Nephrotic syndrome
C. Acute glomerulonephritis
D. Lower urinary tract obstruction

68. Urinalysis of a sample from a patient suspected of having a transfusion reaction reveals small yellow-brown crystals in the microscopic examination. Dry reagent strip tests are normal with the exception of a positive blood reaction (moderate) and trace positive protein. The pH of the urine is 6.5. What test should be performed to positively identify the crystals?
A. Confirmatory test for bilirubin
B. Cyanide–nitroprusside test
C. Polarizing microscopy
D. Prussian blue stain

69. The presence of tyrosine and leucine crystals together in a urine sediment usually indicates:
A. Renal failure
B. Chronic liver disease
C. Hemolytic anemia
D. Hartnup disease

70. At which pH are ammonium biurate crystals usually found in urine?
A. Acid urine only
B. Acid or neutral urine
C. Neutral or alkaline urine
D. Alkaline urine only

71. Which crystal appears in urine as a long, thin hexagonal plate, and is linked to ingestion of large amounts of benzoic acid?
A. Cystine
B. Hippuric acid
C. Oxalic acid
D. Uric acid

72. Acute pyelonephritis is commonly caused by:
A. Bacterial infection of medullary interstitium
B. Circulatory failure
C. Renal calculi
D. Antigen–antibody reactions within the glomeruli

73. All of the following are common characteristics of the nephrotic syndrome except:
A. Hyperlipidemia
B. Hypoalbuminemia
C. Hematuria and pyuria
D. Severe edema

74. Differentiation between cystitis and pyelonephritis is aided by the presence of:
A. WBC casts
B. RBC casts
C. Bacteria
D. Granular casts

75. All states require newborn screening for PKU for early
A. Modifications of diet
B. Administration of antibiotics
C. Detection of diabetes
D. Initiation of gene therapy

76. Hartnup disease is a disorder associated with the metabolism of:
A. Organic acids
B. Tryptophan
C. Cystine
D. Phenylalanine

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CLINICAL MICROSCOPY EXAM

77. Elevated urinary levels of 5-HIAA are associated with:
A. Carcinoid tumors
B. Hartnup disease
C. Cystinuria
D. Platelet disorders

78. Acetyl acetone is added to the urine before performing the Ehrlich test when checking for:
A. Aminolevulinic acid
B. Porphobilinogen
C. Uroporphyrin
D. Coproporphyrin

79. The CSF tube that should be kept at room temperature is:
A. Tube 1
B. Tube 2
C. Tube 3
D. Tube 4

80. The presence of xanthochromia can be caused by all of the following except:
A. Immature liver function
B. RBC degradation
C. A recent hemorrhage
D. Elevated CSF protein

81. Measurement of which of the following can be replaced by CSF glutamine analysis in children with Reye syndrome?
A. Ammonia
B. Lactate
C. Glucose
D. α –Ketoglutarate

82. In serum, the second most prevalent protein is IgG; in CSF, the second most prevalent protein is:
A. Transferrin
B. Prealbumin
C. IgA
D. Ceruloplasmin

83. A CSF glucose of 15 mg/dL, WBC count of 5000, 90% neutrophils, and protein of 80 mg/dL suggests:
A. Fungal meningitis
B. Viral meningitis
C. Tubercular meningitis
D. Bacterial meningitis

84. The finding of oligoclonal bands in the CSF and not in the serum is seen with:
A. Multiple myeloma
B. CNS malignancy
C. Multiple sclerosis
D. Viral infections

85. Before performing a Gram stain on CSF, the specimen must be:
A. Filtered
B. Warmed to 37°C
C. Centrifuged
D. Mixed

86. The reference range for CSF protein is:
A. 6 to 8 g/dL
B. 15 to 45 g/dL
C. 6 to 8 mg/dL
D. 15 to 45 mg/dL

87. Given the following information, calculate the sperm concentration: dilution, 1:20; sperm counted in five RBC squares on each side of the hemocytometer, 80 and 86; volume, 3 mL.
A. 80 million/mL
B. 83 million/mL
C. 86 million/mL
D. 169 million/μ L

88. The major component of seminal fluid is:
A. Glucose
B. Fructose
C. Acid phosphatase
D. Citric acid

89. The percentage of sperm showing average motility that is considered normal is:
A. 25%
B. 50%
C. 60%
D. 75%

90. Normal sperm morphology when using the WHO criteria is:
A. >30% normal forms
B. <30% normal forms
C. >15% abnormal forms
D. <15% normal forms

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CLINICAL MICROSCOPY EXAM

91. Which of the following is not a frequently performed test on synovial fluid?
A. Uric acid
B. WBC count
C. Crystal examination
D. Gram stain

92. Addition of a cloudy, yellow synovial fluid to acetic acid produces a/an:
A. Yellow-white precipitate
B. Easily dispersed clot
C. Solid clot
D. Opalescent appearance

93. Crystals that have the ability to polarize light are:
A. Corticosteroid
B. Monosodium urate
C. Calcium oxalate
D. All of the above

94. During normal production of serous fluid, the slight excess of fluid is:
A. Absorbed by the lymphatic system
B. Absorbed through the visceral capillaries
C. Stored in the mesothelial cells
D. Metabolized by the mesothelial cells

95. Plasma cells seen in pleural fluid indicate:
A. Bacterial endocarditis
B. Primary malignancy
C. Metastatic lung malignancy
D. Tuberculosis infection

96. Another name for a peritoneal effusion is:
A. Peritonitis
B. Lavage
C. Ascites
D. Cirrhosis

97. Which of the following best represents a hemothorax?
A. Blood HCT: 42 Fluid HCT: 15
B. Blood HCT: 42 Fluid HCT: 10
C. Blood HCT: 30 Fluid HCT: 10
D. Blood HCT: 30 Fluid HCT: 20

98. Differentiation between bacterial peritonitis and cirrhosis is done by performing a/an:
A. WBC count
B. Differential
C. Absolute neutrophil count
D. Absolute lymphocyte count

99. When performing an L/S ratio by thin-layer chromatography, a mature fetal lung will show:
A. Sphingomyelin twice as concentrated as lecithin
B. No sphingomyelin
C. Lecithin twice as concentrated as sphingomyelin
D. Equal concentrations of lecithin and sphingomyelin

100. When severe HDN is present, which of the following tests on the amniotic fluid would the physician not order to determine whether the fetal lungs are mature enough to withstand a premature delivery?
A. AFP levels
B. Foam stability index
C. Lecithin/sphingomyelin ratio
D. Phosphatidyl glycerol detection

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CLINICAL MICROSCOPY EXAM

1. The primary chemical affected by the renin-angiotensin-aldosterone system is:
a. Chloride
b. Sodium
c. Potassium
d. Hydrogen

2. The fluid leaving the glomerulus has a specific gravity of:
a. 1.005
b. 1.010
c. 1.015
d. 1.020

3. What are the variables included in the Cockgroft and Gault formula for creatinine clearance?
1. Age
2. Sex
3. Urine creatinine
4. Body weight

a. 1, 2 and 3
b. 1 and 3
c. 1, 2 and 4
d. 1, 2, 3 and 4

4. The average total volume of urine produced by a normal adult every 24 hours is about:
a. 750 mL
b. 1200 mL
c. 2000 mL
d. 2400 mL

5. An abnormal decrease in urine production is called:
a. Anuria
b. Oliguria
c. Polyuria
d. Dysuria

6. Cloudiness in a freshly-voided urine could indicate the presence of:
a. Protein
b. Sugar
c. WBCs
d. Any of these

7. Which of these plasma substances is NOT normally filtered through the glomerulus in significant amounts?
a. Protein
b. Glucose
c. Creatinine
d. Urea

8. Which term is defined as a urine volume in excess of 2000 mL excreted over a 24-hour period?
a. Anuria
b. Oliguria
c. Polyuria
d. Hypersthenuria

9. which of the following will contribute to a specimen's specific gravity if it is present in a person's urine?
a. 50-100 RBC/hpf
b. 85 mg/dL glucose
c. 3+ amorphous phosphates
d. Moderate bacteria

10. Why is the first-voided morning urine specimen the most desirable specimen for routine urinalysis?
a. Most dilute specimen of the day
b. Less contamination by microorganisms
c. It can detect orthostatic proteinuria
d. Most concentrated specimen of the day

11. Freshly voided normal urine is usually clear; however, if it is alkaline, a white turbidity may be present due to:
a. Yeast cells
b. Uroerythrin
c. WBCs
d. Amorphous phosphates

12. A strong odor of cabbage in a urine specimen could indicate:
a. Methionine malabsorption
b. Trimethylaminuria
c. Phenylketonuria
d. Tyrosyluria

13. A specimen with a strong ammonia odor and a heavy white precipitate when it arrives in the laboratory may require:
a. Collection of a fresh specimen
b. Centrifugation
c. Dilution for specific gravity
d. Testing under a hood

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CLINICAL MICROSCOPY EXAM

14. A correlation exists between a specific gravity of 1.050 and a:
a. 2+ protein
b. 2+ glucose
c. Radiographic dye infusion
d. First morning specimen

25. Which of the following is the major organic substance found in urine?
a. Sodium
b. Glucose
c. Chloride
d. Urea

26. A reagent test strip impregnated with an aromatic amine such as p-arsanilic acid or sulfanilamide may be used to detect which analyte
a. Bilirubin
b. Blood
c. Nitrite
d. Urobilinogen

27. What is the expected pH range of a freshly voided urine specimen?
a. 3.5-8.0
b. 3.5-9.0
c. 4.0-8.5
d. 4.5-8.0

28. False positive levels of 5-HIAA can be caused by a diet high in:
a. Bananas
b. Tomatoes
c. Pineapples
d. All of these

29. Blue diaper syndrome is associated with:
a. Lesch-Nyhan syndrome
b. Hartnup disease
c. Alkaptonuria
d. Dubin-Johnson syndrome

30. Hurler, Hunter and Sanfilippo syndrome are hereditary disorders affecting metabolism of:
a. Tryptophan
b. Purines
c. Mucopolysaccharides
d. Porphyrins

31. Uroporphyrinogen decarboxylase deficiency is associated with which of the following?
a. Acute intermittent porphyria (AIN)
b. Hereditary coproporphyria (HCP)
c. Congenital erythropoietic porphyria (CEP)
d. Porphyria cutanea tarda (PCT)

32. Urinary screening tests for mucopolysaccharides:
1. Acid albumin
2. CTAB
3. Cyanide-Nitroprusside
4. Nitroso-naphthol
a. 1 and 2
b. 2 only
c. 1, 2 and 3
d. 3 and 4

33. He discovered phenylketonuria from a mentally retarded child with a peculiar mousy odor to his urine:
a. Ivan Folling
b. Garrod
c. Cotugno
d. Frederik Dekkers

34. A clinically significant epithelial cell is the:
a. Cuboidal cell
b. Clue cell
c. Caudate cell
d. Squamous epithelial cell

35. When using the glass slide and coverslip method, which of the following might be missed if the coverslip is overflowed?
a. RBCs
b. WBCs
c. Casts
d. Bacteria

36. Which of the following should be used to reduce light intensity in bright-field microscopy?
a. Centering screws
b. Aperture diaphragm
c. Rheostat
d. Condenser aperture diaphragm

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

37. The finding of dysmorphic RBCs is indicative of:
a. Renal calculi
b. Traumatic injury
c. Glomerular bleeding
d. Coagulation disorders

38. The primary component of urinary mucus is:
a. Albumin
b. Uromodulin
c. Goblet cells
d. Beta2-microglobulin

39. The purpose of the Hansel stain is to identify:
a. Neutrophils
b. Monocytes
c. Renal tubular cells
d. Eosinophils

40. What is the normal value for urinary eosinophils?
a. >10%
b. <1%
c. >1%
d. <10%

41. A disorder characterized by the disruption of the electrical charges that produce the tightly fitting podocyte barrier resulting in massive loss of proteins and lipids:
a. Alport syndrome
b. Nephrotic syndrome
c. IgA nephropathy
d. Lipid nephrosis

42. Visicoureteral reflux or the reflux of urine from the bladder back into the ureters may result to:
a. Acute glomerulonephritis
b. Cystitis
c. Acute pyelonephritis
d. Acute interstitial nephritis

43. The presence of renal tubular epithelial cells and casts is an indication of:
a. Acute interstitial nephritis
b. Chronic glomerulonephritis
c. Minimal change disease
d. Acute tubular necrosis

44. End-stage renal disease is characterized by all of the following EXCEPT:
a. Electrolyte imbalance
b. Azotemia
c. Hypersthenuria
d. Isosthenuria

45. Broad and waxy casts are most likely associated with:
a. Nephrotic syndrome
b. Acute renal failure
c. Chronic renal failure
d. Focal segmental glomerulosclerosis

46. It is described as a genetic disorder showing lamellated and thinning of glomerular basement membrane:
a. Goodpasture syndrome
b. Alport syndrome
c. Nephrotic syndrome
d. Weener's granulomatosis

47. Casts are formed primarily in which portion of the kidney?
a. Distal convoluted tubule
b. Glomerulus
c. Loop of Henle
d. Proximal convoluted tubule

48. A parasite associated with a positive leukocyte esterase is:
a. Enterobius vermicularis
b. Trichomonas vaginalis
c. Schistosoma haematobium
d. Candida albicans

49. The hormone characteristically present in the blood of pregnant women and which, when its concentration in the blood reaches a certain point, also appears in the urine is:
a. Estradiol
b. Aldosterone
c. Progesterone
d. hCG

50. HCG is produced by which of the following?
a. Cytotrophoblast cells
b. Argentaffin cells
c. Endocervical glandular cells
d. Type II pneumocytes

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

51. The most common composition of renal calculi is:
a. Calcium oxalate
b. Magnesium ammonium phosphate
c. Cystine
d. Uric acid

52. A renal calculi described as yellowish to brownish red in color with a moderately hard consistency is:
a. Cystine
b. Phosphate
c. Calcium oxalate
d. Uric acid

53. A renal calculi described as pale and friable is:
a. Cystine
b. Phosphate
c. Calcium oxalate
d. Uric acid

54. A stool specimen collected from an infant with diarrhea has a pH of 5.0. This result correlates with a:
a. Positive APT test
b. Negative trypsin test
c. Positive Clinitest
d. Negative occult blood test

55. What is the gold standard for fecal fat determination?
a. Van de Kamer titration
b. Van den Berg reaction
c. APT test
d, D-Xylose test

56. Which of the following pairings of stool appearance and cause does not match?
a. Pale, frothy: steatorrhea
b. Black, tarry: blood
c. Yellow-gray: bile duct obstruction
d. Yellow-green: barium sulfate

57. All of the following statements about CSF are true EXCEPT:
a. CSF is formed by ultrafiltration of plasma through the choroid plexus
b. CSF circulates in the subarachnoid space and ventricles of the brain
c. The chemical composition of CSF is similar to plasma
d. Reabsorption of CSF occurs via vessels in the sagittal sinus

58. All of the following are indication of CSF traumatic tap EXCEPT:
a. Clearing of fluid as it is aspirated
b. A clear supernatant after centrifugation
c. Xanthochromia
d. Presence of a clot in the sample

59. The term used to denote a high WBC count in the CSF is:
a. Empyema
b. Neutrophilia
c. Pleocytosis
d. Lymphocytosis

60. The limulus lysate test on CSF is a sensitive assay for:
a. Viral meningitis
b. Cryptococcal meningitis
c. Gram positive bacterial exotoxin
d. Gram negative bacterial endotoxin

61. A normal CSF glucose and lactate level is associated with which type of meningitis?
a. Viral meningitis
b. Bacterial meningitis
c. Fungal meningitis
d. Tubercular meningitis

62. The most common cause of male infertility is:
a. Mumps
b. Klinefelter'ssyndrome
c. Varicocele
d. Malignancy

63. Which of the following stains is used to determine sperm viability?
a. Eosin
b. Hematoxylin
c. Papanicolau
d. Methylene blue

64. Seminal fluid viscosity graded as 4 is described as:
a. Watery
b. Fair
c. Friable
d. Gel-like

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

65. The sugar present in the seminal fluid in high concentration is:
a. Glucose
b. Lactose
c. Fructose
d. Sucrose

66. Maturation of spermatozoa takes place in the:
a. Sertoli cells
b. Seminiferous tubules
c. Epididymis
d. Seminal vesicles

67. Which test for FLM is least affected by contamination with hemoglobin and meconium?
a. Amniostat-FLM
b. Foam stability
c. Lamellar body count
d. L/S ratio

68. How are specimens for FLM testing delivered to and stored in the laboratory?
a. Delivered on ice and refrigerated or frozen
b. Immediately centrifuged
c. Kept at room temperature
d. Protected from light

69. The presence of a fetal neural tube disorder may be detected by:
a. Increased amniotic fluid bilirubin
b. Increased maternal serum alpha-fetoprotein
c. Decreased amniotic fluid phosphatidyl glycerol
d. Decreased maternal serum acetylcholinesterase

70. What type of tube for gastric fluid collection is inserted through the mouth?
a. Rehfuss tube
b. Levine tube
c. Diagnex tube
d. None of these

71. A gastric disorder characterized by achlorhydria due to the presence of anti-parietal cell antibodies:
a. Zollinger-Ellison disease
b. Helicobacter pylori infection
c. Pernicious anemia
d. Cystic fibrosis

72. All of the following may be associated with bronchial asthma EXCEPT:
a. Creola bodies
b. Curschmann's spiral
c. Charcot-Leyden crystals
d. Pneumoliths

73. A sputum that is rusty-colored and filled with pus is associated with:
a. Congestive heart failure
b. Lobar pneumonia
c. Tuberculosis
d. Anthracosis

74. Rice bodies are called so because:
a. It was discovered by Dr. Rice
b. It resembles cooked rice
c. It resembles uncooked rice
d. It resembles polished rice

75. Lyme arthritis is caused by:
a. Borrelia recurrentis
b. Borrelia hermsii
c. Borrelia burgdorferi
d. Neisseria gonorrhoeae

76. CYFRA 21-1 is a tumor marker for:
a. Uterine cancer
b. Colon cancer
c. Lung cancer
d. Breast cancer

77. This is a sensitive test for the detection of intra-abdominal bleeding:
a. Peritoneal lavage
b. Bronchioalveolar lavage
c. Thoracic lavage
d. Pericardial lavage

78. What is the method of choice for preservation of routine urinalysis samples?
a. Boric acid
b. Formalin
c. Sodium fluoride
d. Refrigeration

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

79. A urine specimen for routine urinalysis would be rejected by the laboratory because:
a. The specimen had been refrigerated
b. More than 50 mL was in the container
c. The label was placed on the side of the container
d. The specimen and accompanying request did not match

80. Which of the following is the preferred urine specimen for cytology studies?
a. Catheterized
b. First morning
c. Suprapubic aspiration
d. Three-glass collection

81. Following collection, urine specimens should be delivered to the laboratory promptly and tested within ___ hour(s)
a. 1
b. 2
c. 3
d. 4

82. All of the following changes occur in unpreserved urine EXCEPT:
1. Decreased glucose
2. Increased
3. Increased ketones
4. Increased clarity
5. Incr. urobilinogen pH
6. Increased bacteria

a. 3, 4 and 5
b. 1, 2 and 6
c. 1, 3 and 5
d. 1, 2, 3, 4, 5 and 6

83. Which of the following matches regarding specimen collection is/are incorrect?
1. Arthrocentesis ± synovial fluid
2. Amniocentesis ± amniotic fluid
3. Thoracentesis ± Ascitic fluid
4. Pericardiocentesis ± Pleural fluid

a. 1 and 2
b. 3 and 4
c. 1 and 3
d. 2 and 4

84. The most representative sample for fecal fat analysis is:
a. First morning
b. 3-day collection
c. 2-day collection
d. None of the above

85. Three labeled tubes of CSF specimen were sent to the laboratory. Which of these tubes will be used for cell counting?
a. Tube 1
b. Tube 2
c. Tube 3
d. Any of these

86. If seminal fluid fructose analysis will be delayed for more than 2 hours, the sample should be stored at what condition?
a. Refrigerator temperature
b. Frozen
c. Body temperature
d. Room temperature

87. It is the process that provides documentation of proper sample identification from the time of collection to the receipt of laboratory results:
a. Proficiency testing
b. Accreditation
c**. Chain of custody**
d. Pre-analytical phase

88. This is also known as the modulation contrast microscope:
a. Nomarski
b. Hoffman
c. Kohler
d. Phase-contrast

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

89. It refers to the ability of a microscopic lens to distinguish two small objects that are a specific distance apart:
a. Parfocal
b. Birefringence
c. Illumination
d. Resolution

90. Which type of microscopy is used to aid in identification of cholesterol in oval fat bodies, fatty casts and crystals?
a. Polarizing
b. Phase-contrast
c. Interference-contrast
d. Dark-field

91. It is based on the principle that the frequency of a sound wave entering a solution changes in proportion to the density of the solution
a. Harmonic oscillation densitometry
b. Refractive index
c. Urinometer
d. Reagent strip

92. What is the minimum urine volume required by the Clinitek Atlas automated instrument?
a. 1 mL
b. 2 mL
c. 7 mL
d. 15 mL

93. All of the following are important to protect the integrity of reagent strips EXCEPT:
a. Storing in an opaque bottle
b. Storing at room temperature
c. Removing the dessicant from the bottle
d. Resealing the bottle after removing a strip

94. When a control is run, what information is documented?
a. The lot number
b. Expiration date of the control
c. The test results
d. All of the above

95. Given the following, identify the preanalytical errors:
1. Patient misidentification
2. Poor handwriting
3. Reagent deterioration
4. Insufficient urine volume
5. Delayed transport of urine to lab
6. Instrument malfunction

a. 1, 4 and 5
b. 2, 3 and 6
c. 1, 2 and 3
d. 4, 5 and 6

96. The best way to break the chain of infection is:
a. Decontamination
b. PPE
c. Aerosol prevention
d. Handwashing

97. An acceptable disinfectant for blood and body fluid decontamination is:
a. NaOH
b. Antimicrobial soap
c. H2O2
d. Sodium hypochlorite

98. The last thing to do when a fire is discovered is to:
a. Rescue persons in danger
b. Activate the alarm system
c. Close doors to other areas
d. Extinguish the fire if possible

99. A class ABC fire extinguisher contains:
a. Water
b. Dry chemicals
c. Sand
d. Acid

100. Correct procedure for handwashing, EXCEPT:
a. Wet hands with warm water
b. Thoroughly clean between fingers for at least 15 seconds
c. Rinse hands in an upward position
d. Turn off faucets with a clean paper towel

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

1. In the urinalysis laboratory the primary source in the chain of infectionwould be:
A. Patients
B. Needlesticks
C. Specimens
D. Biohazardous waste

2. The best way to break the chain of infection is:
A. Hand sanitizing
B Personal protective equipment
C. Aerosol prevention
D. Decontamination

3. The current routine infection control policy developed by CDC and followed in all health-care settings is:
A. Universal Precautions
B. Isolation Precautions
C. Blood and Body Fluid Precautions
D. Standard Precautions

4. An employee who is accidentally exposed to a possi□ble blood-borne pathogen should immediately:
A. Report to a supervisor
B. Flush the area with water
C. Clean the area with disinfectant
D. Receive HIV prophylaxis

5. Personnel in the urinalysis laboratoryshould wear lab coats that:
A. Do not have buttons
B. Are fluid-resistant
C. Have short sleeves
D. Have full-length zippers

6. All of the following should be discarded in biohaz-ardous waste containers excep
A. Urine specimen containers
B. Towels used for decontamination
C. Disposable lab coats
D. Blood collection tubes

7. An employer who fails to provide sufficient glives for the employees may be fined by the:
A. CDC
B. NFPA
C. OSHA
D. FDA

8. An acceptable disinfectant for blood and body fluid decontamination is:
A. Sodium hydroxide
B. Antimicrobial soap
C. Hydrogen peroxide
D. Sodium hypochlorite

9. Proper handwashing includes all of the following except:
A. Using warm water
B. Rubbing to create a lather
C. Rinsing hands in downward position
D. Turning on the water with a paper towel

10. Centrifuging an uncapped specimen may produce a biological hazard in the form of:
A. Vectors
B. Sharps contamination
C. Aerosols
D. Specimen contamination

11. An employee who accidentally spills acid on his arm should immediately:
A. Neutralize the acid with a base
B. Hold the arm under running water for 15 minutes
C. Consult the MSDSs
D. Wrap the arm in gauze and go the emergency de□partment

12. When combining acid and water, ensure that:
A. Acid is added to water
B. Water is added to acid
C. They are added simultaneously
D. Water is slowly added to acid

13. An employee can learn the carcinogenic potentialof potassium chloride by consulting the:
A. Chemical hygienic plan
B. Material safety data sheets
C. OSHA standards
D. Urinalysis procedure manual

14. Employees should not work with radioisotopes if they are:
A. Wearing contact lenses
B. Allergic to iodine
C. Sensitive to latex
D. Pregnant

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

15. All of the following are safe to do when removing the source of an electric shock except:

A. Pulling the person away from the instrument
B. Turning off the circuit breaker
C. Using a glass container to move the instrument
D. Unplugging the instrument

16. The acronym PASS refers to:

A. Presence of vital chemicals
B. Operation of a fire extinguisher
C. Labeling of hazardous material
D. Presence of radioactive substances

17. The system used by firefighters when a fire occurs in the laboratort is:

A. MSDS
B. RACE
C. NFPA
D. PASS

18. A class ABC fire extinguisher contains:

A. Sand
B. Water
C. Dry chemicals
D. Acid

19. The first thing to do when a fire is discovered is to:

A. Rescue the persons in danger
B. Activate the alarm system
C. Close the doors to other areas
D. Extinguish the fire if possible

20. If a red rash is observed after removing gloves, the employee:

A. May be washing her hands too often
B. May have developed a latex allergy
C. Should apply cortisone cream
D. Should not rub the hands so vigorously

21. Pipetting by mouth is:

A. Acceptable for urine but not serum
B. Not acceptable without proper training
C. Acceptable for reagents but not specimens
D. Not acceptable in the laboratory

22. The NFPA classification symbol contains information on all of the following except:

A. Fire Hazards
B. Biohazards
C. Reactivity
D. Health Hazards

23. The classification of a fire thst can be extinguished with water is:

A. Class A
B. Class B
C. Class C
D. Class D

24. Employers are required to provide free immunization for:

A. HIV
B. HTLV-1
C. HBV
D. HCV

25. A possible physical hazard in the hospital is:

A. Wearing closed-toe shoes
B. Not wearing jewelry
C. Having short hair
D. Running to answer the telephone

26. Quality assessment refers to:

A. Analysis of testing controls
B. Increased productivity
C. Precise control results
D. Quality of specimens and patient care

27. During laboratory accreditation inspections, procedure manuals are examined for the presence o

A. Critical values
B. Procedure references
C. Procedures for specimen preservation
D. All of above

28. As supervisor of the urinalysis laboratory, you have just adopted a new procedure. You should:

A. Put the package insert in the procedure manual
B. Put a complete, referenced procedure in the manual
C. Notify the microbiology department
D. Put a cost analysis study in the procedure manual

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

29. The testing of sample from an outside agency and the comparison of results with participating laboratories is called:
A. External QC
B. Electronic QC
C. Internal QC
D. Proficiency testing

30. A color change that indicates that a sufficient amount of patient's specimen or reagent is added correctly to the test system would be an example of:
A. External QC
B. Equivalent QC
C. Internal QC
D. Proficiency testing

31. What steps are taken when the results of reagent strip QC are outside of the stated confidence limits?
A. Check the expiration date of the reagent strip
B. Run a new control
C. Open a new reagent strips container
D. All of the above

32. When a new bottle of QC material is opened, what information is placed on the label?
A. The supervisor's initials
B. The lot number
C. The date and the laboratory worker's initials
D. The time the bottle was opened

33. When a control is run, what information is documented?
A. The lot number
B. Expiration date of the control
C. The test results
D. All of the above

34. The reagent strip test for nitrite uses the:
A. Greiss reaction
B. Ehrlich reaction
C. Peroxidase reaction
D. Pseudoperoxidase reaction

35. Leaving excess urine on the reagent strip after removing it from the specimen will:
A. Cause run-over between reagent pads
B. Alter the color of the specimen
C. Cause reagents to leach from the pads
D. Not affect the chemical reactions

36. Failure to mix a specimen before inserting the reagent strip will primarily affect the:
A. Glucose reading
B. Blood reading
C. Leukocyte reading
D. Both B and C

37. Testing a refrigerated specimen that has not warmed to room temperature will adversely affect:
A. Enzymatic reactions
B. Dye-binding reactions
C. The sodium nitroprusside reaction
D. Diazo reactions

38. The reagent strip reaction that requires the longest reaction time is the:
A. Bilirubin
B. pH
C. Leukocyte esterase
D. Glucose

39. Quality control of reagent strips is performed:
A. Using positive and negative controls
B. When results are questionable
C. At least once every 24 hours
D. All of the above

40. All of the following are important to protect the integrity of reagent strips except:
A. Removing the desiccant from the bottle
B. Storing in an opaque bottle
C. Storing at room temperature
D. Resealing the bottle after removing a strip

41. The principle of the reagent strip test for pH is the:
A. Protein error of indicators
B. Greiss reaction
C. Dissociation of a polyelectrolyte
D. Double indicator reaction

42. A urine specimen with a pH of 9.0:
A. Indicates metabolic acidosis
B. Should be recollected
C. May contain calcium oxalate crystals
D. Is seen after drinking cranberry juice

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

43. In the laboratory, a primary consideration associated with pH is:
A. Identifying urinary crystals
B. Monitoring vegetarian diets
C. Determining specimen acceptability
D. Both A and C

44. The principle of the protein error of indicators reaction is that:
A. Protein keeps the pH of the urine constant
B. Albumin accepts hydrogen ions from the indicator
C. The indicator accepts hydrogen ions from albumin
D. Albumin changes the pH of the urine

45. All of the following will cause false-positive protein reagent strip values except:
A. Microalbuminuria
B. Highly buffered alkaline urines
C. Delay in removing the reagent strip from the specimen
D. Contamination by quaternary ammonium compounds

46. A patient with a 2+ protein reading in the afternoon is asked to submit a first morning specimen. The second specimen has a negative protein reading. This patient is:
A. Positive for orthostatic proteinuria
B. Negative for orthostatic proteinuria
C. Positive for Bence Jones protein
D. Negative for clinical proteinuria

47. Testing for microalbuminuria is valuable for early detection of kidney disease and monitoring patients with:
A. Hypertension
B. Diabetes mellitus
C. Cardiovascular disease risk
D. All of the above

48. The primary chemical on the reagent strip in the Micral-Test for microalbumin binds to
A. Protein
B. Antihuman albumin antibody
C. Conjugated enzyme
D. Galactoside

49. All of the following are true for the ImmunoDip test for microalbumin except:
A. Unbound antibody migrates farther than bound antibody
B. Blue latex particles are coated with antihuman albumin antibody
C. Bound antibody migrates further than unbound antibody
D. It utilizes an immunochromographic principle

50. The principle of the protein-high pad on the Multistix Pro reagent strip is the:
A. Diazo reaction
B. Enzymatic dye-binding reaction
C. Protein error of indicators
D. Microalbumin-Micral-Test

51. Which of the following is not tested on the Multistix Pro reagent strip?
A. Urobilinogen
B. Specific gravity
C. Creatinine
D. Protein-high

52. The principle of the protein-low reagent pad on the Multistix Pro is the:
A. Binding of albumin to sulphonphthalein dye
B. Immunologic binding of albumin to antibody
C. Reverse protein error of indicators reaction
D. Enzymatic reaction between albumin and dye

53. The principle of the creatinine reagent pad on microalbumin reagent strips is the
A. Double indicator reaction
B. Diazo reaction
C. Pseudoperoxidase reaction
D. Reduction of a chromogen

54. The purpose of performing an albumin: creatinine ratio is to:
A. Estimate the glomerular filtration rate
B. Correct for hydration in random specimens
C. Avoid interference for alkaline urines
D. Correct for abnormally colored urines

55. A patient with a normal blood glucose and a positive urine glucose should be further checked for:
A. Diabetes mellitus
B. Renal disease
C. Gestational diabetes
D. Pancreatitis

56. The principle of the reagent strip tests for glucose is the:
A. Peroxidase activity of glucose
B. Glucose oxidase reaction
C. Double sequential enzyme reaction
D. Dye-binding of glucose and chromogen

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

57. All of the following may produce false-negative glu□cose reactions except:
A. Detergent contamination
B. Ascorbic acid
C. Unpreserved specimens
D. Low urine temperature

58. The primary reason for performing a Clinitest is to:
A. Check for high ascorbic acid levels
B. Confirm a positive reagent strip glucose
C. Check for newborn galactosuria
D. Confirm a negative glucose reading

59. The three intermediate products of fat metabolism include all of the following except:
A. Acetoacetic acid
B. Ketoacetic acid
C. ²-hydroxybutyric acid
D. Acetone

60. The most significant reagent strip test that is associated with a positive ketone result
A. Glucose
B. Protein
C. pH
D. Specific gravity

61. The primary reagent in the reagent strip test for ketones is:
A. Glycine
B. Lactose
C. Sodium hydroxide
D. Sodium nitroprusside

62. Ketonuria may be caused by all of the following except
A. Bacterial infections
B. Diabetic acidosis
C. Starvation
D. Vomiting

63. Urinalysis on a patient with severe back and abdominal pain is frequently performed to check for
A. Glucosuria
B. Proteinuria
C. Hematuria
D. Hemoglobinuria

64. The principle of the reagent strip test for blood is based on the:
A. Binding of heme and a chromogenic dye
B. Peroxidase activity of heme
C. Reaction of peroxide and chromogen
D. Diazo activity of heme

65. A speckled pattern on the blood pad of the reagent strip indicates:
A. Hematuria
B. Hemoglobinuria
C. Myoglobinuria
D. All of the above

66. The principle of the reagent strip test for bilirubin is the:
A. Diazo reaction
B. Ehrlich reaction
C. Greiss reaction
D. Peroxidase reaction

67. An elevated urine bilirubin with a normal urobilinogen is indicative of:
A. Cirrhosis of the liver
B. Hemolytic disease
C. Hepatitis
D. Biliary obstruction

68. The primary cause of a false-negative bilirubin reaction is
A. Highly pigmented urine
B. Specimen contamination
C. Specimen exposure to light
D. Excess conjugated bilirubin

69. The purpose of the special mat supplied with the Ictotest tablets is that
A. Bilirubin remains on the surface of the mat.
B. It contains the dye needed to produce color
C. It removes interfering substances.
D. Bilirubin is absorbed into the mat

70. The reagent in the Multistix reaction for urobilinogen is:
A. A diazonium salt
B. Tetramethylbenzidine
C. p-Dimethylaminobenzaldehyde
D. Hoesch reagent

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

71. The primary problem with urobilinogen tests using Ehrlich reagent is:
A. Positive reactions with porphobilinogen
B. Lack of specificity
C. Positive reactions with Ehrlich's reactive substances
D. All of the above

72. .All of the following can cause a negative nitrite reading except
A. Gram-positive bacteria
B. Gram-negative bacteria
C. Random urine specimens
D. Heavy bacterial infections

73. A positive nitrite test and a negative leukocyte esterase test is an indication of a:
A. Dilute random specimen
B. Specimen with lysed leukocytes
C. Vaginal yeast infection
D. Specimen older than 2 hours

74. All of the following can be detected by the leukocyte esterase reaction except:
A. Neutrophils
B. Eosinophils
C. Lymphocytes
D. Basophils

75. Screening tests for urinary infection combine the leukocyte esterase test with the test for:
A. pH
B. Nitrite
C. Protein
D. Blood

76. The principle of the leukocyte esterase reagent strip test uses a:
A. Peroxidase reaction
B. Double indicator reaction
C. Diazo reaction
D. Dye-binding technique

77. The principle of the reagent strip test for specific gravity uses the dissociation constant of a(n):
A. Diazonium salt
B. Indicator dye
C. Polyelectrolyte
D. Enzyme substrate

78. A specific gravity of 1.005 would produce the reagent strip color:
A. Blue
B. Green
C. Yellow
D. Red

79. Reagent strip-specific gravity readings are affected by:
A. Glucose
B. Radiographic dye
C. Alkaline urine
D. All of the above

80. Presence of meconium in amniotic fluid:
a. Blood-streaked
b. Yellow
c. Dark green
d. Dark red-brown

81. How are specimens for FLM testing delivered to and stored in the laboratory?
a. Delivered on ice and refrigerated
b. Immediately centrifuged
c. Kept at room temperature
d. Delivered in a vacuum tube

82. Amniotic fluid bilirubin is measured by
a. Turbidimetric method
b. Dye-binding method
c. Spectrophotometric analysis
d. Fluorometric analysis

83. A ΔA450 value that falls into Zone I indicates:
a. Normal finding without significant hemolysis
b. Moderate hemolysis
c. Severe hemolysis
d. High fetal risk

84. In the foam or shake test, amniotic fluid is mixed with:
a. 1% NaOH
b. 10% NaOH
c. 70% ethanol
d. 95% ethanol

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

85. When severe HDN is present, which of the following tests on the amniotic fluid would the physician NOT ORDER to determine whether the fetal lungs are mature enough to withstand a premature delivery?

a. AFP levels
b. Foam stability index
c. Lecithin/sphingomyelin ratio
d. Phosphatidylglycerol detection

86. Amniotic fluid specimens are placed in amber colored tubes prior to sending them to the laboratory to prevent the destruction of:

a. Alpha-fetoprotein
b. Bilirubin
c. Cytogenetics
d. Lecithin

88. Typical number of CSF tubes

a. Two
b. Five
c. Four
d. Three

89. A web-like pellicle in a refrigerated CSF specimen indicates

a. Tubercular meningitis
b. Multiple sclerosis
c. Primary CNS malignancy
d. Viral meningitis

90. A CSF total cell count is diluted with:

a. Distilled water
b. Normal saline
c. Acetic acid
d. Hypotonic saline

91. As little as 0.1 mL of CSF combined with one drop of _____ produces an adequate cell yield when processed with the cytocentrifuge

a. 10% albumin
b. 30% albumin
c. 1% HCl
d. 3% acetic acid

92. Fungal infection associated with increased eosinophils in CSF:

a. Blastomyces dermatitidis
b. Coccidioides immitis
c. Cryptococcus neoformans
d. Histoplasma capsulatum

93. CSF can be differentiated from serum by the presence of:

a. Albumin
b. Globulin
c. Prealbumin
d. Tau transferrin

94. The finding of oligoclonal bands in the CSF and not in the serum is seen with:

a. Multiple myeloma
b. CNS malignancy
c. Multiple sclerosis
d. Viral infections

95. Liquefaction of a semen specimen should take place within:

a. 1 hour
b. 2 hours
c. 3 hours
d. 4 hours

96. Semen is collected following a period of sexual abstinence of at least___ days to not more than ___ days.

a. At least 1 day to not more than 3 days
b. At least 2 days to not more than 7 days
c. At least 5 days to not more than 7 days
d. At least 7 days to not more than 10 days

97. Sperm production

a. Testes
b. Epididymis
c. Bulbourethral gland
d. Prostate gland

98. SPERM MOTILITY: slower speed, some lateral movement

a. 1.0
b. 2.0
c. 3.0
d. 4.0

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

99. The acrosomal cap should encompass approximately ___ of the head and cover approximately___ of the sperm nucleus.

a. Half of the head and covers half of the sperm nucleus

b. Half of the head and covers 2/3 of the sperm nucleus

c. Two-thirds of the head and covers half of the sperm nucleus

d. Two-thirds of the head and covers 2/3 of the sperm nucleus

100. Seminal fluid specimens can be screened for the presence of fructose using the resorcinol test that produces an _____ color when fructose is present

a. Black

b. Blue

c. Green

d. Orange

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

1. Type of Extinguisher for Class B fire
1. Water
2. Dry Chemical
3. Carbon Dioxide
4. Foam

A. 1, 2, 4
B. 2, 4
C. 2, 3, 4
D. 1, 4

2. All of the following should be discarded in biohazardous waste containers except:
A. Urine specimen containers
B. Towels used for decontamination
C. Disposable lab coats
D. Blood collection tubes

3. The acronym PASS refers to:
A. Presence of vital chemicals
B. Operation of a fire extinguisher
C. Labeling of hazardous material
D. Presence of radioactive substances

4. Shock and heat may deteriorate
A. 0
B. 1
C. 2
D. 3
E. 4

5. The formation of urine begins in the:
A. Nephron
B. Glomerulus
C. Ureter
D. Bladder

6. Which of the following is true about the first morning urine specimen?
A. It contains high levels of analytes and cellular elements.
B. It is preferred for culture and sensitivity testing.
C. It is used for substances affected by diurnal variation.
D. It is the most common type of specimen collected

7. Failure to call critical values
1. Preexamination
2. Examination
3. Postexamination

A. 1, 2
B. 1, 3
C. 2
D. 3

8. Monitoring whether the sample migrated through the test strip properly in lateral flow test methods is an example of:
A. External QC
B. Equivalent QC
C. Internal QC
D. Proficiency testing

9. In Stamey-Mears Test, which of the following test/s for urinary bladder infection?
I. VB1
II. VB2
III. EPS
IV. VB3

A. I, II
B. II, III
C. I
D. II

10. What is the required volume of urine for drug testing?
A. 30 – 45 mL
B. 10 – 15 mL
C. 60 mL
D. 50 mL

C. Homogentisic acid
D. Nitrofurantoin

11. Imparts a black color to alkaline urine?
A. Phenindione
B. Phenazopyridine

C. 3 °C to 5 °C
D. 1 °C to 5 °C

12. CLSI guidelines for microbiological urine testing recommend refrigeration of specimens at _____ or the use of chemical preservatives if the specimen cannot be processed within 2 hours of collection.
A. 2 °C to 8 °C
B. 4 °C to 8 °C

C. Turbidity with granulation and flocculation
D. Clumps of protein

13. In reporting for SSA turbidity, a grade of 3+ indicates:
A. Distinct turbidity, with no granulation
B. Turbidity with granulation, no flocculation

C. 30-100 mg/dL
D. 100-200 mg/dL

14. Protein value for 1+ grade in Sulfosalicylic Acid Precipitation Test:
A. <6 mg/dL
B. 6-30 mg/dL

15. Urine pH is:
A. An indicator of proteinuria
B. Helpful in the identification of some types of crystals in the urine
C. Unaffected by diet
D. Unchanged for each individual

C. PCT RTE cells

16. RTE cell which is considered LARGER than other RTE cells, having a rectangular shape
A. DCT RTE cells
B. Collecting duct RTE cells

17. Which of the following is a concentration test?
I. Specific Gravity
II. Osmometry
III. PAH Test
IV. Creatinine clearance

C. I, II, III
D. I, IV

A. I
B. I, II

C. Tamm-Horsfall
D. Urobilin

18. A type of protein which is produced by the renal tubular epithelial cells; and proteins from prostatic, seminal, and vaginal secretions
A. Albumin
B. Uroerythrin

C. 30 mg/dL
D. 5 mg/dL

19. Clinical proteinuria is indicated at
A. 10 mg/dL
B. 20 mg/dL

C. Ascending loop of Henle
D. Distal convoluted tubule

20. Which of the tubules is impermeable to water?
A. Proximal convoluted tubule
B. Descending loop of Henle

C. Collecting Duct
D. Loop of Henle

21. Final concentration of filtrate happens on:
A. PCT
B. DCT

C. Collecting Duct
D. Loop of Henle

22. Aldosterone acts on
A. PCT
B. DCT

C. Collecting Duct
D. Loop of Henle

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

24. For testing of Catecholamines what type of urine specimen should be collected?
A. 24 hour urine
B. First morning
C. Random
D. Fasting second morning

25. Used for culture and albumin
A. Boric Acid
B. Sodium Fluoride
C. Thymol
D. Formalin

26. False positive in Formalin
A. Blood
B. Urobilinogen
C. Leukocyte esterate
D. Bilirubin

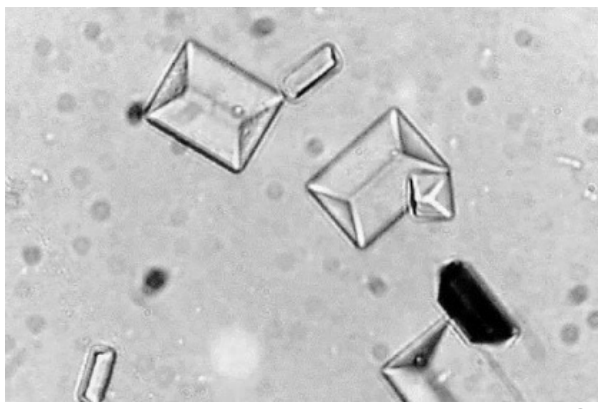
27. Positive nitrite corresponds to
A. 100,000 organism/mL
B. 100 organism/mL
C. 1,000 organism/mL
D. 10,000 organism/mL

28. Convert bright field to dark field
A. Replace condenser
B. Two polarizing filters must be installed in a crossed configuration.
C. Two phase rings that appear as “targets” are placed in the condenser and the objective

29. Which of the following is the major organic substance found in urine?
A. Sodium
B. Potassium
C. Glucose
D. Urea

30. Speckled pattern on the blood pad of the reagent strip indicate
A. Hemoglobinuria
B. Myoglobinuria
C. Hematuria
D. A&B

31. Identify the crystal.



A. Struvite
B. Calcium phosphate
C. Dihydrate CaOx
D. Monohydrate CaOx

32. What is the most common crystal in alkaline urine?
A. Staghorn calculi
B. Struvite
C. Calcium phosphate
D. Calcium carbonate

33. Least common renal stone
A. Calcium oxalate
B. Cystine
C. Calcium phosphate
D. Triple phosphate

34. A reagent test strip impregnated witha diazonium salt such as diazotized 2,4-dichloroaniline may be used to determine which analyte?
A. Glucose
B. Ketone
C. Bilirubin
D. Hemoglobin

35. The final phase of degeneration that granular casts undergo is represented by which of the following casts?
A. Fine
B. Coarse
C. Cellular
D. Waxy

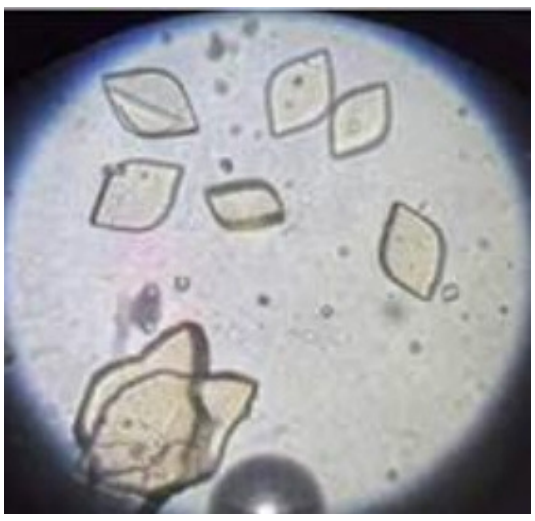
MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

36. When urine decomposes, the pH:
a. Becomes more alkaline
b. Becomes more acidic
c. Does not change
d. Causes crystals associated with acidic urine to form

37. The presence of hyaline indicates:
A. Acute glomerulonephritis
B. Acute pyelonephritis
C. Diabetic nephropathy
D. Strenuous exercise

38. Identify the crystal.



A. Uric acid
B. Amorphous phosphate
C. Amorphous urate
D. Calcium oxalate

39. Confused with sulfonamide when urine pH is in neutral
A. Calcium carbonate
B. Calcium phosphate
C. Amorphous phosphate
D. Amorphous urate

40. Identify the crystal according to the tests conducted:

Test	Uric Acid	Cystine
Ammonia	**Soluble**	**Soluble**
HCl	Insoluble	**Soluble**
Birefringence	**Positive**	**Negative**
Na nitroprusside Test	Negative (Colorless)	Positive (**Red-purple color**

A. Tyrosine
B. Cholesterol
C. Uric acid
D. Cystine

41. Similar with radiographic contrast media
A. Tyrosine
B. Cholesterol
C. Uric acid
D. Cystine

42. Seen in conjunction with leucine in specimens positive test for bilirubin.
A. Tyrosine
B. Cholesterol
C. Uric acid
D. Cystine

43. LDH pattern in CSF
A. 1>2>3>4>5
B. 2>1>3>4>5
C. 5>4>3>2>1
D. 4>3>2>1>5

44. Volume of gastric fluid
A. 50 – 75 mL
B. 5 – 10 mL
C. 100 – 150 mL
D. 1 – 5 mL

45. Choroid plexus produces ___ amount of CSF per hour
A. 30 mL
B. 40 mL
C. 20 mL
D. 50 mL

46. Daily control slide for bacteria (albumin contamination)
A. 0.3 mL saline + 3 drops of 30% albumin
B. 0.4 mL saline + 3 drops of 20% albumin
C. 0.2 mL saline + 2 drops of 30% albumin
D. 0.1 mL saline + 2 drops of 20% albumin

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

47. In cytocentrifuge, Addition of 50% Albumin is to:
A. Increases cell yield
B. Decreases cellular distortion
C. A & B
D. None of the above

48. For glucose, the plasma renal threshold is _____, and glucose appears in the urine when the plasma concentration reaches this level
A. 190 to 200 mg/dL
B. 150 to 250 mg/dL
C. 100 to 150 mg/dL
D. 160 to 180 mg/dL

49. Which of the following crystals are seen in urine of patients who are receiving chemotherapy due to leukemia
a. Ammonium biurates
b. Uric acid
c. Calcium oxalate
D. Leucine

50. The presence of tyrosine and leucine crystals together in a urine sediment usually indicates:
A. Liver disease
B. Hartnup disease
C. Lesch Nyhan syndrome
D. Renal tubular damage

51. The clarity of a well-mixed urine specimen that has few particulates, print easily seen through urine should be described as
A. Turbid
B. Hazy
C. Coudy
D. Clear

52. The presence of oligoclonal bands in CSF but not in serum is associated with:
A. Spina bifida
B. Multiple sclerosis
C. Reye's Syndrome
D. Hydrocephalus

53. Following an episode of hemoglobinuria, RTE cells may contain _____.
A. Bilirubin
B. Hemosiderin granules
C. Porphobilinogen
D. Myoglobin

54. Following an abnormal sperm motility test with a normal sperm count, what additional test might be ordered?
A. Zinc level
B. Fructose level
C. MAR test
D. Eosin-Nigrosin stain

55. Normal vitality requires ___ or more living cells and should correspond to the previously evaluated motility.
A. 30%
B. 40%
C. 50%
D. 60%

56. A normal quantitative level of fructose is equal to or _____ µmol per ejaculate
A. Greater than 12
B. Greater than 13
C. Greater than 14
D. Greater than 15

57. Specimens can be screened for the presence of fructose using the resorcinol test that produces an ____ color when fructose is present.
A. Orange
B. Bluish White
C. Red
D. Purple

58. A maximum of ___ mL of amniotic fluid is collected in sterile syringes.
A. 10 mL
B. 20 mL
C. 30 mL
D. 50 mL

59. Seminal fluid are collected following a period of sexual abstinence of:
A. 6 to 8 days
B. 3 to 5 days
C. 8 to 10 days
D. 2 to 7 days

60.

A. Leucine
B. Bilirubin
C. Tyrosine
D. Cholesterol

61. Nitrite in a urine specimen suggests the presence of:
A. White blood cells
B. Red blood cells
C. Bacteria
D. Yeasts

62. What condition is suggested by picture?

A. Glomerulonephritis
B. Improperly collected specimen
C. Pyelonephritis
D. Normal sample

63. The most frequently seen parasite in urine
A. Trichomonas vaginalis
B. Schistosoma haematobium
C. Wuchereria bancroftii
D. Enterobius vermicularis

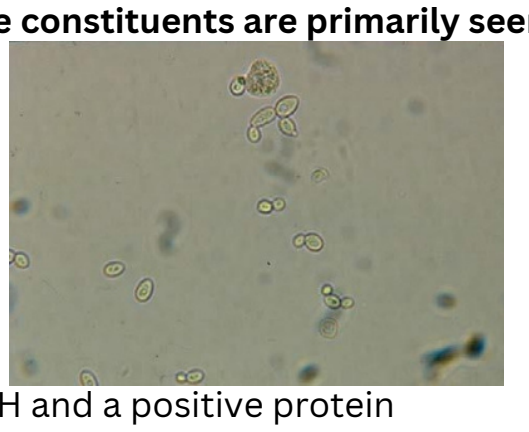
64. Which of the following is the best indicator of Reye syndrome for CSF?
A. Ammonia
B. Glutamine
C. ALT
D. Bilirubin

65. The _____ is the thickest part of the tail because it is surrounded by a mitochondrial sheath that produces the energy required by the tail for motility
A. Head
B. Acrosome
C. Neckpiece
D. Midpiece

66. Plotting the amniotic fluid OD on a Liley graph represents the severity of hemolytic disease of the newborn. A value that is plotted in zone II indicates what condition of the fetus?
A. No hemolysis
B. Mildly affected fetus
C. Moderately affected fetus that requires close monitoring
D. Severely affected fetus that requires intervention

67. A sweat chloride >70 mEq/L (70 mmol/L) is indicative of:
A. Multiple sclerosis
B. Muscular dystrophy
C. Respiratory distress syndrome
D. Cystic fibrosis

68. These constituents are primarily seen in urine with an:



A. Acid pH and a positive protein
B. Alkaline pH and bacteria
C. Acid pH and a positive glucose
D. Alkaline pH and a positive protein

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

69. Which of the following can be used to identify a fluid as CSF?
A. Oligoclonal bands
B. Xanthochromia
C. Transferrin t protein
D. Absence of glucose

70. What is added to synovial fluid to determine the viscosity?
A. Sodium hydroxide
B. Acetic acid
C. Hydrochloric acid
D. Hyaluronic acid

71. A physician attempts to aspirate a knee joint and obtains 0.1 mL of slightly bloody fluid. Addition of acetic acid results in turbidity and a clot. This indicates that:
A. The fluid is synovial fluid
B. The specimen is not adequate
C. Red blood cells caused a false-positive reaction
D. Plasma was obtained

72. Sperm are usually counted in the four corner and center squares of the large center square. Both sides of the hemocytometer are loaded and allowed to settle for 3 to 5 minutes; then they are counted, and the counts should agree within _____
A. Agree within 10%
B. Agree within 11%
C. Agree within 12 %
D. Agree within 13 %

73. The presence of rice bodies in a synovial fluid is strongly associated with:
A. Gouty arthritis
B. Rheumatoid arthritis
C. Traumatic collection
D. Infection wtih Staphylococcus aureus

74. The most likely cause of increased neutrophils is a pericardial fluid exudate is _____.
A. Tuberculosis
B. Bacterial endocarditis
C. Cardiac puncture
D. Pneumonia

75. The most sensitive fecal enzyme test for the diagnosis of pancreatic insufficiency measures_____.
A. Lipase
B. Trypsin
C. Elastase I
D. Chymotrypsin

76. CSF lactate is used to verify cases of which of the following?
A. Multiple sclerosis
B. Bacterial meningitis
C. Reye's syndrome
D. Tertiary syphilis

77. Synovial fluid from a 68-year-old male reveals rhombic crystals with weak positive birefringence when viewed using polarizing microscopy. These crystals can be identified as:
A. Cholesterol
B. Hydroxyapatite
C. Calcium pyrophosphate dihydrate
D. Monosodium urate

78. Most frequently seen cell in BAL
A. Macrophage
B. Lymphocyte
C. Eosinophil
D. Mast cells

79. Acetylcholinesterase activity may be measured on amniotic fluid when a positive alpha□fetoprotein result is obtained to evaluate for:
A. Fetal lung maturity
B. Neural tube defects
C. Respiratory distress syndrome
D. Hemolytic disease of the newborn

80. Which is the reference method for determining fetal lung maturity?
A. L/S ratio
B. Urinary estriol
C. Amniotic fluid bilirubin
D. Human placental lactogen

81. Which pair does not match with respect to amniotic fluid?
A. Dark green - hemolytic disease of the newborn
B. Dark red-brown - fetal death
C. Colorless - normal
D. Blood-streaked - traumatic collection

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

82. False-positive results can occur for fecal occult blood due to ingestion of:
A. Ascorbic acid
B. Horseradish
C. Acetaminophen
D. Blueberries

83. Synovial fluid crystals associated with inflammation in dialysis patients are:
A. Calcium pyrophosphate dihydrate
B. Calcium oxalate
C. Corticosteroid
D. Monosodium urate

84. Stool specimens that appear ribbon-like are indicative of which condition?
A. Colitis
B. Malignancy
C. Bile duct obstruction
D. Intestinal constriction

85. A build-up of fluid in a body cavity is called a(n):
A. Metastasis
B. Exudate
C. Effusion
D. Transudate

86. All of the following proteins are normally present in the CSF except for
A. Albumin
B. Fibrinogen
C. Transthyretin
D. Transferrin

87. Amniotic fluid for fetal lung maturity testing should be preserved _____.
A. In the refrigerator
B. At room temperature
C. In a dark container
D. At 37 C

88. A web-like pellicle in a refrigerated CSF specimen indicates
A. Tubercular meningitis
B. Multiple sclerosis
C. Primary CNS malignancy
D. Viral meningitis

89. Most commonly used dilution in sperm count
A. 1:5
B. 1:10
C. 1:15
D. 1:20

90. A positive amine (Whiff) test is observed in which of the following syndromes?
A. Bacterial vaginosis
B. Vulvovaginal candidiasis
C. Atrophic vaginitis
D. Desquamative inflammatory vaginitis

91. The protein present in vaginal secretions that can identify patients who are at risk for preterm delivery is:
A. Human chorionic gonadotropin
B. Estrogen
C. PAMG-1
D. Fetal fibronectin

92. What calculation is used to determine if there is a breach in the blood-brain barrier?
A. IgG index
B. CSF/serum albumin index
C. fluid/serum LD ratio
D. albumin gradient

93. Sysmex UF series, the DNA within the cells is stained by the orange dye:
A. Carbocyanine
B. Phenathridine
C. Coomassie brilliant blue
D. Bromcresol green

94. What is the preferred gastric stimulant?
A. Histamine
B. Histalog
C. Insulin
D. Pentagastrin

95. Normal lymphocyte count in bronchoalveolar lavage (BAL):
A. Less than 1%
B. Less than 3%
C. 1 to 15%
D. 56 to 80%

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

96. Before performing a Gram stain on CSF, the specimen must be:
A. Filtered
B. Warmed to 37C
C. Centrifuged
D. Mixed

97. Which of the following tests is a specific measureof glomerular filtration?
A. p-Aminohippuric acid (PAH) clearance
B. Fishberg concentration test
C. Mosenthal dilution test
D. Cystatin C

98. What is the most common cause of male infertility?
A. Mumps
B. Klinefelter's syndrome
C. Varicocele
D. Malignancy

99. In which condition is the highest level of serum gastrin usually seen?
A. Atrophic gastritis
B. Pernicious anemia
C. Z–E syndrome
D. Cancer of the stomach

100. A quantitative serum hCG is ordered on a male patient. The technologist should:
A. Perform the test and report the result
B. Request that the order be cancelled
C. Perform the test and report the result if negative
D. Perform the test and report the result only if greater than 25 IU/L

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

1. The best way to break the chain of infection is:
A. Hand sanitizing
B. Personal protective equipment
C. Aerosol prevention
D. Decontamination

2. All of the following should be discarded in biohazardous waste containers except:
A. Urine specimen containers
B. Towels used for decontamination
C. Disposable lab coats
D. Blood collection tubes

3. Employees should not work with radioisotopes if they are
A. Wearing contact lenses
B. Allergic to iodine
C. Varicocele
D. Malignancy

4. The acronym PASS refers to:
A. Presence of vital chemicals
B. Operation of a fire extinguisher
C. Labeling of hazardous material
D. Presence of radioactive substances

5. If a red rash is observed after removing gloves, the employee:
A. May be washing her hands too often
B. May have developed a latex allergy
C. Should apply cortisone cream
D. Should not rub the hands so vigorously

6. The average daily output of urine is:
A. 200 mL
B. 500 mL
C. 1200 mL
D. 2500 mL

7. An unidentified fluid is received in the laboratory with a request to determine whether the fluid is urine or another body fluid. Using routine laboratory tests, what tests would determine that the fluid is most probably urine?
A. Glucose and ketones
B. Urea and creatinine
C. Uric acid and amino acids
D. Protein and amino acids

8. The primary advantage of a first morning specimen over a random specimen is that it:
A. Is less contaminated
B. Is more concentrated
C. Is less concentrated
D. Has a higher volume

9. The primary cause of unsatisfactory results in an unpreserved routine specimen not tested for 8 hours is
A. Bacterial growth
B. Glycolysis
C. Decreased pH
D. Chemical oxidation

10. Labels for urine containers are:
A. Attached to the container
B. Attached to the lid
C. Placed on the container prior to collection
D. Not detachable

11. A urine specimen may be rejected by the laboratory for all of the following reasons except the fact that the:
A. Requisition states the specimen is catheterized
B. Specimen contains toilet paper
C. Label and requisition do not match
D. Outside of the container has fecal material Contamination

12. A cloudy specimen received in the laboratory may have been preserved using:
A. Boric acid
B. Chloroform
C. Refrigeration
D. Formalin

13. The most sterile specimen collected is a:
A. Catheterized
B. Midstream clean-catch
C. Three-glass
D. Suprapubic aspiration

14. Which of the following would not be given to a patient prior to the collection of a midstream clean-catch specimen?
A. Sterile container
B. Iodine cleanser
C. Antiseptic towelette
D. Instructions

MEDICAL TECHNOLOGY LICENSURE EXAM PREPARATION IN THE PHILIPPINES

CLINICAL MICROSCOPY EXAM

15. All of the following are characteristics of recommended urine containers except:
A. A flat bottom
B. A capacity of 50 mL
C. A snap-on lid
D. Are disposable

16. A patient presenting with polyuria, nocturia, polydipsia, and a low urine specific gravity is exhibiting symptoms of:
A. **Diabetes insipidus**
B. Diabetes mellitus
C. Urinary tract infection
D. Uremia

17. A patient with oliguria might progress to having:
A. Nocturia
B. Polyuria
C. Polydipsia
D. Anuria

18. Prolonged exposure of a preserved urine specimen to light will cause:
A. Decreased glucose
B. Increased cells and casts
C. Decreased bilirubin
D. Increased bacteria

19. Which of the following would be least affected in a specimen that has remained unpreserved at room temperature for more than 2 hours?
A. Urobilinogen
B. Ketones
C. Protein
D. Nitrite

20. Substances that show diurnal variation in their urinary excretion pattern are best evaluated using a
A. first morning specimen.
B. midstream “clean catch” specimen
C. random specimen.
D. timed collection

21. A 25-year-old woman complains of painful urination and is suspected of having a urinary tract infection. Which of the following specimens should be collected for a routine urinalysis and urine culture?
A. First morning specimen
B. Timed collection
C. Midstream “clean catch” specimen
D. Random specimen

22. The renin-angiotensin-aldosterone system is responsible for all of the following except:
A. Vasoconstriction of the afferent arteriole
B. Vasoconstriction of the efferent arteriole
C. Reabsorbing sodium
D. Releasing aldosterone

23. The primary chemical affected by the renin□angiotensin□aldosterone system
A. Chloride
B. Sodium
C. Potassium
D. Hydrogen

24. The fluid leaving the glomerulus has a specific gravity of:
A. 1.005
B. 1.010
C. 1.015
D. 1.020

25. For active transport to occur, a chemical:
A. Must combine with a carrier protein to create electrochemical energy
B. Must be filtered through the proximal convoluted tubule
C. Must be in higher concentration in the filtrate than in the blood
D. Must be in higher concentration in the blood than in the filtrate

26. Which of the tubules is impermeable to water?
A. Proximal convoluted tubule
B. Descending loop of Henle
C. Ascending loop of Henle
D. Distal convoluted tubule

27. Decreased production of ADH:
A. Produces a low urine volume
B. Produces a high urine volume
C. Increases ammonia excretion
D. Affects active transport of sodium

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28. Clearance tests used to determine the glomerular filtration rate must measure substances that are:
A. Not filtered by the glomerulus
B. Completely reabsorbed by the proximal convoluted tubule
C. Secreted in the distal convoluted tubule
D. Neither reabsorbed or secreted by the tubules

29. Variables that are included in the MDRD-IDSM estimated creatinine clearance calculations include all of the following except:
A. Serum creatinine
B. Weight
C. Age
D. Gender

30. The ability of a solute to cross the glomerular filtration barrier is determined by its
1. molecular size.
2. molecular radius.
3. electrical charge.
4. plasma concentration.

A. 1, 2, and 3 are correct.
B. 1 and 3 are correct.
C. 4 is correct.
D. All are correct.

31. Which of the following substances is secreted into the tubular lumen to eliminate hydrogen ions?
A. Ammonia (NH3)
B. Ammonium ions (NH4+)
C. Disodium phosphate (Na2HPO4)
D. Monosodium phosphate (NaH2PO4)

32. The final concentration of the urine is determined within the
A. collecting ducts.
B. distal convoluted tubules.
C. loops of Henle.
D. proximal convoluted tubules.

33. Specimens that contain hemoglobin can be visually dis□tinguished from those that contain RBCs because
A. Hemoglobin produces a clear, yellow specimen
B. Hemoglobin produces a cloudy pink specimen
C. RBCs produce a cloudy red specimen
D. RBCs produce a clear red specimen

34. A patient with a viscous orange specimen may have been:
A. Treated for a urinary tract infection
B. Taking vitamin B pills
C. Eating fresh carrots
D. Taking antidepressants

35. The presence of a pink precipitate in a refrigerated specimen is caused by:
A. Hemoglobin
B. Urobilin
C. Uroerythrin
D. Beets

36. A urine specific gravity measured by refractometer is 1.029, and the temperature of the urine is 14°C. The specific gravity should be reported as:
A. 1.023
B. 1.027
C. 1.029
D. 1.032

37. The microscopic of a clear red urine is reported as many WBCs and epithelial cells. What does this suggest?
A. Urinary tract infection
B. Dilute random specimen
C. Hematuria
D. Possible mix-up of specimen and sediment

38. A single substance can impart different colors to urine depending on the
1. amount of the substance present.
2. storage conditions of the urine.
3. pH of the urine.
4. structural form of the substance.

A. 1, 2, and 3 are correct.
B. 1 and 3 are correct
C. 4 is correct.
D. All are correct.

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39. Which of the following methods used to determine the specific gravity of urine does not detect the presence of urine protein or glucose?
A. Harmonic oscillation densitometry
B. Reagent strip
C. Refractometry
D. Urinometry

40. Which of the following specific gravity values is physiologically impossible?
A. 1.000
B. 1.010
C. 1.020
D. 1.030

41. A discrepancy between the urine SG determined by measuring refractive index and urine osmolality would be most likely to occur:
A. After catheterization of the urinary tract
B. In diabetes mellitus
C. After an intravenous pyelogram (IVP)
D. In uremia

42. Which statement best describes the clinical utility of tests for microalbuminuria?
A. Testing may detect early renal involvement in diabetes mellitus
B. Microalbuminuria refers to a specific subfraction of albumin found only in persons with diabetic nephropathy
C. A positive test result indicates the presence of orthostatic albuminuria
D. Testing should be part of the routine urinalysis

43. The normal renal threshold for glucose is:
A. 70–85 mg/dL
B. 100–115 mg/dL
C. 130–145 mg/dL
D. 165–180 mg/dL

44. In which of the following conditions is glycosuria most likely?
A. Addison's disease
B. Hypothyroidism
C**. Pregnancy**
D. Hypopituitarism

45. A positive glucose oxidase test and a negative test for reducing sugars indicates:
A. True glycosuria
B. False-positive reagent strip test
C. False-negative reducing test caused by ascorbate
D. Galactosuria

46. AAA is detected in urine by reaction with:
A. Sodium nitroprusside
B. o-Toluidine
C. m-Dinitrobenzene
D. m-Dinitrophenylhydrazine

47. Which of the following statements regarding the classical nitroprusside reaction for ketones is true?
A. The reaction is most sensitive to acetone
B. Nitroprusside reacts with acetone, AAA, and β-hydroxybutyric acid
C. It may be falsely positive in phenylketonuria
D. The reaction is recommended for diagnosing Ketoacidosis

48. Which of the following conditions is associated with a negative blood test and an increase in urine urobilinogen?
A. Calculi of the kidney or bladder
B. Malignancy of the kidney or urinary system
C. Crush injury
D. Extravascular hemolytic anemia

49. A moderate-positive blood test and trace protein test are seen on the dry reagent strip, and 11–20 red blood cells per high-power field are seen in the microscopic exam. These results are most likely caused by which of the following?
A. Transfusion reaction
B. Myoglobinuria
C. Intravascular hemolytic anemia
D. Recent urinary tract catheterization

50. Which of the following reagents is used to detect urobilinogen in urine?
A. p-Dinitrobenzene
B. p-Aminosalicylate
C. p-Dimethylaminobenzaldehyde
D. p-Dichloroaniline

51. The primary reason for performing a Clinitest is to:
A. Check for high ascorbic acid levels
B. Confirm a positive reagent strip glucose
C. Check for newborn galactosuria
D. Confirm a negative glucose reading

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52. An elevated urine bilirubin with a normal urobilinogen is indicative of:
A. Cirrhosis of the liver
B. Hemolytic disease
C. Hepatitis
D. Biliary obstruction

53. The purpose of the special mat supplied with the Ictotest tablets is that:
A. Bilirubin remains on the surface of the mat.
B. It contains the dye needed to produce color.
C. It removes interfering substances.
D. Bilirubin is absorbed into the mat.

54. Screening tests for urinary infection combine the leukocyte esterase test with the test for:
A. pH
B. Nitrite
C. Protein
D. Blood

55. A positive nitrite test and a negative leukocyte esterase test is an indication of a:
A. Dilute random specimen
B. Specimen with lysed leukocytes
C. Vaginal yeast infection
D. Specimen older than 2 hours

56. When urine sediment is viewed, stains and various microscopic techniques are used to
1. enhance the observation of fine detail.
2. confirm the identity of suspected components.
3. differentiate formed elements that look alike.
4. facilitate the visualization of low-refractile components.

A. 1, 2, and 3 are correct.
B. 1 and 3 are correct.
C. 4 is correct.
D. All are correct.

57. The microscopic identification of hemosiderin is enhanced when the urine sediment is stained with
A. Gram stain.
B. Hansel stain.
C. Prussian blue stain.
D. Sudan III stain

58. When the laboratorian performs the microscopic examination of urine sediment, which of the following are enumerated using low-power magnification?
A. Bacteria
B. Casts
C. Red blood cells
D. Renal tubular cells

59. A urine sediment could have which of the following formed elements and still be considered “normal”?
A. Two or fewer hyaline casts
B. Five to 10 red blood cells
C. A few bacteria
D. A few yeast cells

60. Which description of sediment with Sternheimer–Malbin stain is correct?
A. Transitional epithelium: cytoplasm pale blue, nucleus dark blue
B. Renal epithelium: cytoplasm light blue, nucleus dark purple
C. Glitter cells: cytoplasm dark blue, nucleus dark purple
D. Squamous epithelium: cytoplasm pink, nucleus pale blue

61. A 5-mL urine specimen is submitted for routine urinalysis and analyzed immediately. The SG of the sample is 1.012 and the pH is 6.5. The dry reagent strip test for blood is a large positive (3+) and the microscopic examination shows 11–20 RBCs per HPF. The leukocyte esterase reaction is a small positive (1+), and the microscopic examination shows 0–5 WBCs per HPF. What is the most likely cause of these results?

A. Myoglobin is present in the sample
B. Free hemoglobin is present
C. Insufficient volume is causing microscopic results to be underestimated
D. Some WBCs have been misidentified as RBCs

62. Which of the following statements regarding RBCs in the urinary sediment is true?
A. Yeast cells will lyse in dilute acetic acid but RBCs will not
B. RBCs are often swollen in hypertonic urine
C. RBCs of glomerular origin often appear dysmorphic
D. Yeast cells will tumble when the cover glass is touched but RBCs will not

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63. Renal tubular epithelial cells are shed into the urine in largest numbers in which condition?
A. Malignant renal disease
B. Acute glomerulonephritis
C. Nephrotic syndrome
D. Cytomegalovirus (CMV) infection of the kidney

64. Oval fat bodies are often seen in:
A. Chronic glomerulonephritis
B. Nephrotic syndrome
C. Acute tubular nephrosis
D. Renal failure of any cause

65. Which condition promotes the formation of casts in the urine?
A. Chronic production of alkaline urine
B. Polyuria
C. Reduced filtrate formation
D. Low urine SG

66. The mucoprotein that forms the matrix of a hyaline cast is called:
A. Bence–Jones protein
B. β-Microglobulin
C. Tamm–Horsfall protein
D. Arginine-rich glycoprotein

67. A sediment with moderate hematuria and RBC casts most likely results from:
A. Chronic pyelonephritis
B. Nephrotic syndrome
C. Acute glomerulonephritis
D. Lower urinary tract obstruction

68. Urinalysis of a sample from a patient suspected of having a transfusion reaction reveals small yellow-brown crystals in the microscopic examination. Dry reagent strip tests are normal with the exception of a positive blood reaction (moderate) and trace positive protein. The pH of the urine is 6.5. What test should be performed to positively identify the crystals?
A. Confirmatory test for bilirubin
B. Cyanide–nitroprusside test
C. Polarizing microscopy
D. Prussian blue stain

69. The presence of tyrosine and leucine crystals together in a urine sediment usually indicates:
A. Renal failure
B. Chronic liver disease
C. Hemolytic anemia
D. Hartnup disease

70. At which pH are ammonium biurate crystals usually found in urine?
A. Acid urine only
B. Acid or neutral urine
C. Neutral or alkaline urine
D. Alkaline urine only

71. Which crystal appears in urine as a long, thin hexagonal plate, and is linked to ingestion of large amounts of benzoic acid?
A. Cystine
B. Hippuric acid
C. Oxalic acid
D. Uric acid

72. Acute pyelonephritis is commonly caused by:
A. Bacterial infection of medullary interstitium
B. Circulatory failure
C. Renal calculi
D. Antigen–antibody reactions within the glomeruli

73. All of the following are common characteristics of the nephrotic syndrome except:
A. Hyperlipidemia
B. Hypoalbuminemia
C. Hematuria and pyuria
D. Severe edema

74. Differentiation between cystitis and pyelonephritis is aided by the presence of:
A. WBC casts
B. RBC casts
C. Bacteria
D. Granular casts

75. All states require newborn screening for PKU for early
A. Modifications of diet
B. Administration of antibiotics
C. Detection of diabetes
D. Initiation of gene therapy

76. Hartnup disease is a disorder associated with the metabolism of:
A. Organic acids
B. Tryptophan
C. Cystine
D. Phenylalanine

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77. Elevated urinary levels of 5-HIAA are associated with:
A. Carcinoid tumors
B. Hartnup disease
C. Cystinuria
D. Platelet disorders

78. Acetyl acetone is added to the urine before performing the Ehrlich test when checking for:
A. Aminolevulinic acid
B. Porphobilinogen
C. Uroporphyrin
D. Coproporphyrin

79. The CSF tube that should be kept at room temperature is:
A. Tube 1
B. Tube 2
C. Tube 3
D. Tube 4

80. The presence of xanthochromia can be caused by all of the following except:
A. Immature liver function
B. RBC degradation
C. A recent hemorrhage
D. Elevated CSF protein

81. Measurement of which of the following can be replaced by CSF glutamine analysis in children with Reye syndrome?
A. Ammonia
B. Lactate
C. Glucose
D. α –Ketoglutarate

82. In serum, the second most prevalent protein is IgG; in CSF, the second most prevalent protein is:
A. Transferrin
B. Prealbumin
C. IgA
D. Ceruloplasmin

83. A CSF glucose of 15 mg/dL, WBC count of 5000, 90% neutrophils, and protein of 80 mg/dL suggests:
A. Fungal meningitis
B. Viral meningitis
C. Tubercular meningitis
D. Bacterial meningitis

84. The finding of oligoclonal bands in the CSF and not in the serum is seen with:
A. Multiple myeloma
B. CNS malignancy
C. Multiple sclerosis
D. Viral infections

85. Before performing a Gram stain on CSF, the specimen must be:
A. Filtered
B. Warmed to 37°C
C. Centrifuged
D. Mixed

86. The reference range for CSF protein is:
A. 6 to 8 g/dL
B. 15 to 45 g/dL
C. 6 to 8 mg/dL
D. 15 to 45 mg/dL

87. Given the following information, calculate the sperm concentration: dilution, 1:20; sperm counted in five RBC squares on each side of the hemocytometer, 80 and 86; volume, 3 mL.
A. 80 million/mL
B. 83 million/mL
C. 86 million/mL
D. 169 million/μ L

88. The major component of seminal fluid is:
A. Glucose
B. Fructose
C. Acid phosphatase
D. Citric acid

89. The percentage of sperm showing average motility that is considered normal is:
A. 25%
B. 50%
C. 60%
D. 75%

90. Normal sperm morphology when using the WHO criteria is:
A. >30% normal forms
B. <30% normal forms
C. >15% abnormal forms
D. <15% normal forms

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91. Which of the following is not a frequently performed test on synovial fluid?
A. Uric acid
B. WBC count
C. Crystal examination
D. Gram stain

92. Addition of a cloudy, yellow synovial fluid to acetic acid produces a/an:
A. Yellow-white precipitate
B. Easily dispersed clot
C. Solid clot
D. Opalescent appearance

93. Crystals that have the ability to polarize light are:
A. Corticosteroid
B. Monosodium urate
C. Calcium oxalate
D. All of the above

94. During normal production of serous fluid, the slight excess of fluid is:
A. Absorbed by the lymphatic system
B. Absorbed through the visceral capillaries
C. Stored in the mesothelial cells
D. Metabolized by the mesothelial cells

95. Plasma cells seen in pleural fluid indicate:
A. Bacterial endocarditis
B. Primary malignancy
C. Metastatic lung malignancy
D. Tuberculosis infection

96. Another name for a peritoneal effusion is:
A. Peritonitis
B. Lavage
C. Ascites
D. Cirrhosis

97. Which of the following best represents a hemothorax?
A. Blood HCT: 42 Fluid HCT: 15
B. Blood HCT: 42 Fluid HCT: 10
C. Blood HCT: 30 Fluid HCT: 10
D. Blood HCT: 30 Fluid HCT: 20

98. Differentiation between bacterial peritonitis and cirrhosis is done by performing a/an:
A. WBC count
B. Differential
C. Absolute neutrophil count
D. Absolute lymphocyte count

99. When performing an L/S ratio by thin-layer chromatography, a mature fetal lung will show:
A. Sphingomyelin twice as concentrated as lecithin
B. No sphingomyelin
C. Lecithin twice as concentrated as sphingomyelin
D. Equal concentrations of lecithin and sphingomyelin

100. When severe HDN is present, which of the following tests on the amniotic fluid would the physician not order to determine whether the fetal lungs are mature enough to withstand a premature delivery?
A. AFP levels
B. Foam stability index
C. Lecithin/sphingomyelin ratio
D. Phosphatidyl glycerol detection