FOR EACH OF THE FOLLOWING MULTIPLE CHOICE QUESTIONS, CHOOSE THE MOST APPROPRIATE ANSWER.

1. Volatile anesthetics almost always cause:
   A. cardiac stimulation
   B. ventilatory depression
   C. decreased intracranial pressure
   D. hyperthermia

2. The major advantage of codeine over morphine is:
   A. it is three times more potent than morphine
   B. it is a more effective analgesic than morphine
   C. it has better oral activity than morphine
   D. it is better for severe pain than morphine

3. In seriously ill patients the medical use of morphine as an analgesic is most limited by morphine's:
   A. respiratory effects
   B. endocrine effects
   C. gastrointestinal effects
   D. dependence potential

4. Central nervous system effects of which one of the following drugs are thought to result primarily from its conversion to morphine in the brain?
   A. heroin
   B. naltrexone
   C. methadone
   D. meperidine (Demerol)

5. Withdrawal from heroin can be precipitated by administering:
   A. morphine
   B. naloxone (Narcan)
   C. methadone
   D. flumazenil

6. Which of the following is a good opioid antagonist when given orally? In suspected cases of opiate overdose which of the following would reverse the effects.
   A. naloxone
   B. methadone
   C. dextromethorphan
   D. buprenorphine
7. All of the following are organ system effects of narcotics EXCEPT:
   A. mydriasis
   B. emesis
   C. constipation
   D. euphoria
   E. hypotension

8. Which of the following will reverse skeletal muscle paralysis induced by a non-depolarizing neuromuscular blocker?
   A. neostigmine
   B. naloxone
   C. lidocaine
   D. d-tubocurarine

DIRECTIONS: For each numbered item select the ONE lettered option that is most closely associated with it. Each lettered option may be selected once, more than once, or not at all.

   A. Penicillin G
   B. Vancomycin
   C. Ciprofloxacin
   D. Trimethoprim
   E. Gentamicin

   ___  9.  inhibitor of bacterial DNA gyrase
   ___ 10.  β-lactam antibiotic inhibitor of cell wall synthesis
   ___ 11.  an inhibitor of microbial protein synthesis which acts on the 30S subunit of the ribosome
   ___ 12.  a non-β-lactam antibiotic inhibitor of cell wall synthesis

DIRECTIONS: For each numbered item select the ONE lettered option that is most closely associated with it and fill in the circle containing the corresponding letter on the answer sheet. Each lettered option may be used once, more than once, or not at all.

   A. Penicillin G
   B. Trimethoprim
   C. Clavulanate
   D. Erythromycin

   ___ 13.  an inhibitor of β-lactamase
   ___ 14.  dihydrofolate reductase inhibition
   ___ 15.  inhibitor of microbial transpeptidases responsible for crosslinking in peptidoglycan synthesis
16. β-lactam antibiotic of choice for oral administration in the treatment of streptococcal (gram + cocci) pharyngitis:
   A. nafcillin
   B. penicillin V
   C. ciprofloxacin
   D. clindamycin

17. Active against pseudomonas aeruginosa, a gram-negative bacillus:
   A. tetracycline
   B. penicillin V
   C. tobramycin
   D. erythromycin

18. Which of the following antitumor agents inhibits thymidine synthesis:
   A. cisplatin
   B. vincristine
   C. 5-fluorouracil
   D. cytarabine

19. Tamoxifen is most active in postmenopausal women with breast cancer because:
   A. endogenous estradiol levels are lower
   B. greater likelihood of estrogen receptors in tumor tissue
   C. not true; tamoxifen works best in premenopausal patients
   D. both a and b

20. Doxorubicin cardiotoxicity is believed to be due to:
   A. DNA intercalation by planar chromophore
   B. redox cycling of the quinone moiety
   C. inhibition of topoisomerase-II enzymes
   D. none of the above

21. Both 6-mercaptopurine and cytarabine are antimetabolites which:
   A. are converted to a triphosphate nucleotide
   B. selectively block folate synthesis
   C. are cell cycle specific for G₂ phase
   D. all of the above

22. Because of Gompertzian growth kinetics of tumor cells:
   A. the most drug-treatable cancers have high growth fractions and rapid doubling time
   B. large tumors will be more sensitive to cell cycle specific drugs
   C. single, infrequent chemotherapy courses will effectively reduce and eliminate tumor burden
   D. all of the above

23. The cancer drug requiring good hydration prior to administration is:
   A. cytarabine
   B. methotrexate
   C. cyclophosphamide
   D. vincristine
24. The anticancer agent etoposide (VP-16):
   A. is more active by frequent administration
   B. is active in G₁ phase
   C. induces single strand breaks in DNA
   D. all of the above

25. The acute dose-limiting toxicity of cisplatin involves:
   A. cardiotoxicity
   B. neutropenia
   C. renal dysfunction
   D. emesis

26. The anticancer agent (Taxol) paclitaxel causes:
   A. accumulation of cells in mitosis
   B. clumping of microtubules in parallel bundles
   C. neutropenia and neuropathy
   D. all of the above

27. Alcohol (ethanol) has been associated with all of the following **EXCEPT**:
   A. hyperlipemia and fatty liver
   B. vasodilation
   C. gastritis
   D. increased gluconeogenesis

28. Ethanol's diuretic effects are principally due to:
   A. inhibition of release of antidiuretic hormone (ADH)
   B. increased renal blood flow
   C. release of mineralocorticoids
   D. competitive antagonism of aldosterone
   E. inhibition of a renal Na⁺ - K⁺ symport system

29. Cocaine has a legitimate use in medicine as a :
   A. vasodilator and antiarrhythmic
   B. local thrombolytic
   C. local anesthetic and vasoconstrictor
   D. antidepressant

30. The psychotomimetic effects of phencyclidine, also known as PCP or "Angel Dust", is believed to occur through:
   A. blockade of serotonin.
   B. simulation of central muscarinic receptors.
   C. blockade of the NMDA glutamate receptor subtype.
   D. direct stimulation of forebrain dopamine receptors.

31. Lysergic Acid Diethylamide (LSD) causes perceptual, cognitive, and affective changes through its action on:
   A. dopamine receptors
   B. GABA receptors
   C. serotonin receptors
   D. norepinephrine receptors
32. The higher the oil-gas partition coefficient of an inhaled anesthetic the:
   A. lower the MAC
   B. higher the MAC
   C. no correlation with MAC
   D. better the agent is for rapid induction of anesthesia

33. The partial pressure of anesthetic in the brain is correlated with:
   A. whole-body anesthetic uptake
   B. partial pressure in fat.
   C. partial pressure in alveolar gas
   D. concentration in muscle
   E. molecular weight of the anesthetic

34. Malignant hyperthermia presents with:
   A. tachycardia, dysrhythmias
   B. tachyplea
   C. muscle rigidity
   D. all of the above
   E. none of the above

35. Intravenous anesthetics generally:
   A. stimulate the cardiovascular system
   B. enhance respiration
   C. cause a slow induction of anesthesia
   D. increase cerebral metabolism
   E. decrease intracranial pressure

36. Intravenous general anesthetics and inhaled anesthetics enhance the effects of this neurotransmitter:
   A. serotonin
   B. glutamate
   C. acetylcholine
   D. GABA

37. Characteristics of the monobactam antibiotic aztreonam include:
   A. lack of cross-reactivity in patients allergic to penicillin
   B. activity against gram (-) aerobes
   C. not active against Staphylococcus aureus
   D. all of the above

38. The monoclonal antibody rituximab (Rituxan) is useful for treating B-cell lymphomas due to:
   A. binding to the epidermal growth factor (EGF) receptor
   B. binding to the estrogen receptor
   C. binding to the CD-20 receptor
   D. none of the above
39. Exposure to a typical cytotoxic anticancer agent results in bone marrow suppression characterized by:
   A. initial depression of platelets followed by granulocytes and lymphocytes and erythrocytes.
   B. initial depression of granulocytes (1 week nadir) followed by platelets (1-2 week nadir) with recovery in three weeks.
   C. a slow, continuous depression of granulocytes, platelets and erythrocytes over a one-month period, recovery over next month.
   D. pancytopenia [depression of all elements (granulocytes, lymphocytes, erythrocytes, monocytes and megakaryocyte)]
   E. none of the above

40. Each of the following statements is true concerning the nausea resulting from morphine administration EXCEPT:
   A. it results from stimulation of the chemoreceptor trigger zone (CTZ)
   B. partly due in ambulatory patients to an increase in vestibular sensitivity
   C. is counteracted by morphine antagonists
   D. it is unique to morphine since codeine in equianalgesic doses does not cause nausea
   E. more likely to diminish with subsequent doses

41. Cocaine augments the synaptic actions of catecholamines. Therefore the clinical features of cocaine toxicity that you might see would resemble those produced by:
   A. pronounced stimulation of the parasympathetic nervous system
   B. pronounced stimulation of the sympathetic nervous system
   C. pronounced depression of CNS respiratory centers
   D. all of the above

42. Extra-pyramidal side effects, such as tardive dyskinesia, elicited by antipsychotic drugs have been hypothesized to result from neuroleptic-induced changes in dopamine receptors in:
   A. motor cortex
   B. frontal cortex
   C. caudate-putamen
   D. cerebellum
   E. thalamus

43. Neuroleptic-induced Parkinsonian symptoms can be treated with:
   A. L-DOPA
   B. carbidopa
   C. benztropine
   D. haloperidol

44. The dopamine hypothesis for schizophrenia is supported by the following evidence:
   A. L-DOPA reduces psychotic symptoms
   B. dopamine releasing drugs (e.g. amphetamine) can decrease the paranoid symptoms of schizophrenia
   C. antipsychotic drugs are dopamine receptor agonists
   D. none of the above
   E. All of the above
45. Akathisia is a condition where the patient has a compelling urge to be in motion and a feeling of restlessness. It can occur in patients treated with:
   A. carbamazepine
   B. lithium
   C. haloperidol
   D. fluoxetine

46. Lithium is the drug of choice for treating mania because:
   A. its antimanic effects occur within a few hours
   B. it has a wide therapeutic range for serum concentrations
   C. it does not affect renal function
   D. it does not affect heart function
   E. none of the above

47. A 74 year old female with manic depressive illness on lithium becomes hypertensive and is treated. She develops lithium toxicity. What class of drug for treating her hypertension would most likely account for the lithium toxicity?
   A. β-blocker
   B. calcium channel blocker
   C. diuretic
   D. alpha-1 receptor antagonist

48. The neuroleptic-induced side-effect expressed as involuntary movements of tongue and lips is:
   A. acute dystonia
   B. akathisia
   C. tardive dyskinesia
   D. neuroleptic malignant syndrome

49. Foods rich in tyramine must be restricted while on monoamine oxidase inhibitors (MAOI’s) because of the possibility of:
   A. weight gain
   B. severe hypotension
   C. ataxia
   D. pancreatitis
   E. severe hypertension

50. Carbamazepine (Tegretol) doses are likely to require adjustment in the first few weeks of therapy because:
   A. it becomes less protein bound
   B. it becomes more protein bound
   C. it induces its own metabolism
   D. it decreases renal function

51. The benzodiazepine, diazepam, produces its anticonvulsant effects by:
   A. stimulating adenosine receptors
   B. augmenting GABA activity in the brain
   C. blocking voltage-gated sodium channels
   D. augmenting serotonin activity in the brain
52. The most important neurotransmitter to replace in Parkinson’s Disease is:
   A. GABA  
   B. dopamine  
   C. acetylcholine  
   D. norepinephrine  
   E. glycine

53. Of the following the drug of choice to treat anxiety is:
   A. diazepam  
   B. selegiline  
   C. haloperidol  
   D. gabapentin  
   E. amantadine

54. Pharmacologic treatment of heavy metal poisoning usually involves:
   A. chelation  
   B. oral cation-exchange resin  
   C. hemoperfusion  
   D. activated charcoal and cathartic

55. A 16 year old woman arrives in a rural emergency room naked and hallucinating, with tachycardia, large pupils, warm red skin, dry mouth, urinary retention, and decreased bowel sounds. Of the following the most likely agent that produced these effects is:
   A. jimson weed (Datura)  
   B. heroin  
   C. crystal meth (methamphetamine)  
   D. methanol

56. Adverse effects of ‘Typical’ neuroleptic drugs include all of the following EXCEPT:
   A. dry mouth  
   B. Parkinson’s syndrome  
   C. sinus arrhythmias  
   D. drowsiness  
   E. diarrhea

DIRECTIONS: For each numbered item select the ONE lettered option that is most closely associated with it. Each lettered option may be selected once, more than once, or not at all.

   A. Metronidazole  
   B. Gentamicin  
   C. Penicillin G  
   D. Vancomycin  
   E. Ciprofloxacin

   _57._ β-lactam antibiotic inhibitor of bacterial cell wall synthesis

   _58._ inhibitor of microbial protein synthesis; acts at the ribosome

   _59._ inhibitor of bacterial DNA gyrase

   _60._ non-β-lactam antibiotic inhibitor of bacterial cell wall synthesis
DIRECTIONS: For each numbered item select the ONE lettered option that is most closely associated with it. Each lettered option may be selected once, more than once, or not at all.

A. Trimethoprim/sulfamethoxazole
   B. Clavulanate
   C. Penicillin G
   D. Erythromycin

__  61. inhibitor of microbial transpeptidases responsible for crosslinking in peptidoglycan synthesis

__  62. inhibitor of folate pathway in bacteria

__  63. inhibitor of β-lactamase

64. Active against pseudomonas aeruginosa, a gram-negative bacillus:
   A. tetracycline
   B. penicillin V
   C. ceftazidime
   D. erythromycin

65. An antibiotic that should not be given to pregnant women and children:
   A. penicillin G
   B. cephallexin
   C. rambocillin
   D. tetracycline

66. This antibiotic is effective for methicillin-resistant Staph aureus (MRSA) infections:
   A. nafcillin
   B. cefazolin
   C. imipenem
   D. vancomycin

67. Parenterally administered drug for the treatment of life threatening coccidioidomycosis (valley fever):
   A. streptomycin
   B. amphotericin B
   C. cefazolin
   D. gentamicin

68. A bacteriostatic agent used in the treatment of legionnaire’s disease and streptococcal infections in penicillin-allergic patients.
   A. ceftazidime
   B. isoniazid (INH)
   C. tetracycline
   D. erythromycin
DIRECTIONS: For each numbered item, select ONE lettered option that is MOST CLOSELY associated with it. Each lettered option may be selected once, more than once, or not at all.

A. Clavulanate  
B. Ampicillin  
C. Ceftriaxone  
D. Gentamicin

69. binds to the microbial ribosome to inhibit protein synthesis.  
70. effective against many organisms causing bacterial meningitis and penetrates the CSF well.  
71. a β-lactamase inhibitor used in combination with amoxicillin to increase the spectrum of activity.

72. A patient receiving the antibiotic rifampin should be warned of the following:  
A. can cause photophobia  
B. can increase metabolism of other drugs such as oral contraceptives  
C. can cause heart toxicity  
D. all of the above

73. The following has been shown to be effective for the prevention of influenza A:  
A. amantadine  
B. zidovudine  
C. agoraphobia  
D. ganciclovir

74. The antiviral drug zidovudine (AZT):  
A. inhibits reverse transcriptase  
B. inhibits DNA polymerase activity  
C. inhibits HIV protease  
D. A and C  
E. none of the above

75. Anti-HIV protease-inhibitors:  
A. do not undergo hepatic metabolism  
B. markedly reduce infectivity of HIV virus  
C. lower cholesterol as a beneficial side effect  
D. all of the above

DIRECTIONS: For each numbered item, select ONE lettered option that is MOST CLOSELY associated with it. Each lettered option may be selected once, more than once, or not at all.

A. Zidovudine  
B. Ganciclovir  
C. Augmentation  
D. Acyclovir
76. a neuraminidase inhibitor used to treat influenza A and B infections.
77. a drug used for cytomegalovirus (CMV).
78. treatment for infections caused by Herpes Simplex I & II

DIRECTIONS: For each numbered item, select the ONE lettered option that is MOST CLOSELY associated with it and fill in the circle containing the corresponding letter on the answer sheet. Each lettered option may be selected once, more than once, or not at all.

A. Gentamicin
B. Clindamycin
C. Fluconazole
D. Penicillin G
E. Amphotericin B

79. useful for treating Pseudomonas infections but blood level monitoring often used because of risk of nephrotoxicity and ototoxicity.
80. parenteral use only and sensitive to β-lactamase
81. binding to ergosterol causes fungal membrane pores and electrolyte leakage.
82. antifungal agent that inhibits ergosterol synthesis.

DIRECTIONS: For each numbered item, select the ONE lettered option that is MOST CLOSELY associated with it. Each lettered option may be selected once, more than once, or not at all

A. Ampicillin
B. Trimethoprim/Sulfamethoxazole
C. Erythromycin
D. Ciprofloxacin
E. Metronidazole

83. first line drug for treatment and prophylaxis of infections caused by Pneumocystis carinii.
84. an extended spectrum penicillin derivative.
85. a macrolide substitute for Penicillin V in the management of pharyngitis caused by Group A beta-hemolytic streptococci (“strep throat”).
86. DNA synthesis inhibitor useful in management of anaerobic bacterial infections and some intestinal parasites.
87. not often used in children because may damage growing cartilage.
88. Stevens-Johnson Syndrome is most commonly associated with:
   A. amphotericin B
   B. imipenem
   C. trimethoprim/sulfamethoxazole
   D. final exams

89. The mechanism of resistance responsible for vancomycin resistant enterococci (VRE) is:
   A. the D-Ala-D-Ala terminus of the peptidoglycan pentapeptide of is converted to D-Ala-D-lactate
   B. inactivation of vancomycin by ß-lactamase
   C. modification of target penicillin binding proteins (PBPs)
   D. presence of an efflux pump

90. The mechanism of resistance responsible for methicillin resistance in staphylococcus aureus (MRSA) and penicillin resistance in pneumococci.
   A. the D-Ala-D-Ala terminus of the peptidoglycan pentapeptide of is converted to D-Ala-D-lactate
   B. inactivation of antibiotic by ß-lactamase
   C. modification of target penicillin binding proteins (PBPs)
   D. presence of an efflux pump
PRACTICE FINAL EXAM
ANSWER SHEET

1. B
2. C
3. A
4. A
5. B
6. A
7. A
8. A
9. C
10. A
11. E
12. B
13. C
14. B
15. A
16. B
17. C
18. C
19. D
20. B
21. B
22. A
23. C
24. A
25. C
26. D
27. D
28. A
29. C
30. C
31. C
32. A
33. C
34. D
35. E
36. D
37. D
38. C
39. B
40. D
41. B
42. C
43. C
44. D
45. C
46. E
47. C
48. C
49. E
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75. B
76. C
77. B
78. D
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80. D
81. E
82. C
83. B
84. A
85. C
86. E
87. D
88. C
89. A
90. C