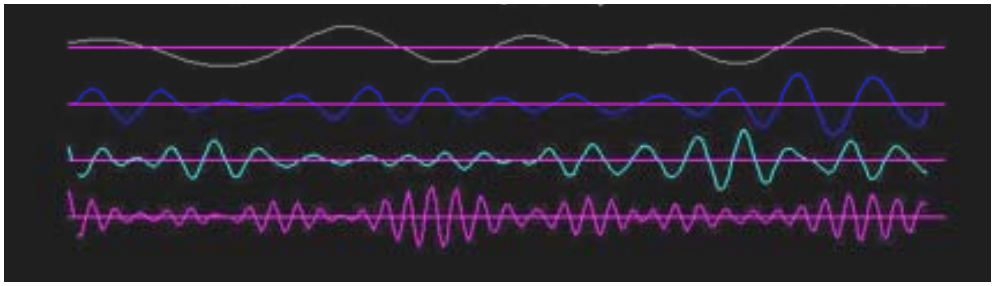
Health Science Test
Westminster Invitational, Div. C
November 10, 2007

Nervous System



Identify the above resting wave forms from top to bottom.

1. _____
2. _____
3. _____
4. _____

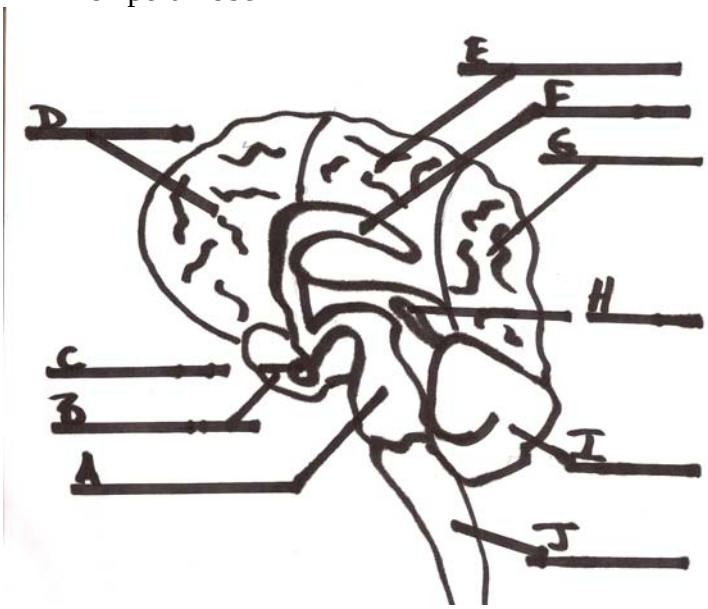
Identify which wave form fits the description of the following:

Alpha waves Beta waves Theta waves Delta waves

5. _____ Frequency of the brain waves is 3.5 – 7.5 Hz
6. _____ Frequency of the brain waves is 8 – 13 Hz
7. _____ Frequency of the brain waves is 3 Hz or less
8. _____ Frequency of the brain waves is Greater than 13 Hz
9. _____ These wave forms tend to be present posteriorly more than anteriorly and are especially prominent with closed eyes and with relaxation
10. _____ Normally seen in sleep. Are considered abnormal if they occur in excess in awake adults
11. _____ They have the largest amplitude of all waves and are normally seen in deep sleep
12. _____ Many drugs, such as barbiturates and benzodiazepines, augment this type of wave
13. _____ and _____ Known collectively as slow waves

Label the parts of the brain

Frontal lobe	Parietal lobe	Occipital lobe	Medulla Oblongata
Pons	Cerebellum	Pituitary Gland	Corpus Collosum
Pineal body	Temporal lobe		



A. _____ F. _____

B. _____ G. _____

C. _____ H. _____

D. _____ I. _____

E. _____ J. _____

24. Name the 12 Cranial Nerves in order.

I. _____ VII. _____

II. _____ VIII. _____

III. _____ IX. _____

IV. _____ X. _____

V. _____ XI. _____

VI. _____ XII. _____

Multiple Choice Questions

25. The doctor's assessment of a patient with a brain tumor reveals that the patient has difficulty interpreting visual stimuli. Based on these, which lobe of the brain would you suspect is injured?
    b. Frontal
    c. Occipital
    d. Temporal
    e. Parietal

26. For someone with a basilar skull fracture, what would you expect to see?
    a. Raccoon's eyes and Battle's sign
    b. Nuchal rigidity and Kerng's sign
    c. Motor loss in the legs that exceeds that in the arms
    d. Pupillary changes

27. Family members would like to bring birthday cake to someone with nerve damage. What cranial nerve needs to be functioning so this person can chew?
    a. Cranial nerve II
    b. Cranial nerve V
    c. Cranial nerve IX
    d. Cranial nerve X

28. Someone complaining of vertigo has a problem with which portion of the ear?
    a. External ear
    b. Middle ear
    c. Inner ear
    d. Tympanic membrane

29. To assess a persons cranial nerve function you would:
    a. Assess hand grip
    b. Assess orientation to person, time and place
    c. Assess arm drifting
    d. Assess gag reflex

30. What neurotransmitter condition is most likely to contribute to the cognitive changes of someone with senile dementia?
    a. Decreased acetylcholine level
    b. Increased acetylcholine level
    c. Increased norepinephrine level
    d. Decreased norepinephrine level

31. If someone is suspected of damage to the lower brain stem, what should you observe him or her for?
    a. Hypoxia
    b. Fever
    c. Visual disturbance
    d. Gait

32. Following a stroke that damages the hypothalamus, you would expect the person to have problems with:
    a. Body temperature control
    b. Balance and equilibrium
    c. Visual acuity
    d. Thinking and reasoning

33. What is the function of cerebrospinal fluid?
    a. It cushions the brain and spinal cord
    b. It acts as an insulator to maintain a constant spinal fluid temperature
    c. It acts as a barrier to bacteria
    d. It produces cerebral neurotransmitters

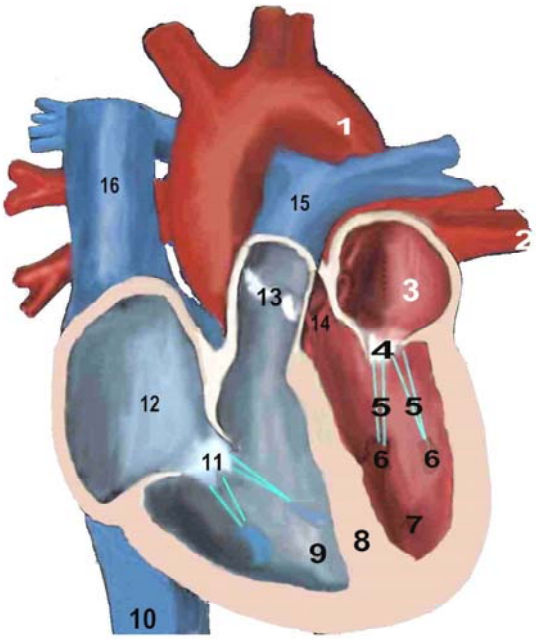
34. If someone is having problems with balance, as well as fine and gross motor function, which area of the brain is malfunctioning?
    a. Pons
    b. Cerebellum
    c. Cortex
    d. Medulla

35. Damage to which area of the brain results in receptive aphasia?
    a. Parietal lobe
    b. Occipital lobe
    c. Temporal lobe
    d. Frontal lobe

Cardiovascular System

Label the following parts on the heart:

Right Ventricle	Left Ventricle	Right Atrium	Left Atrium
Bicuspid valve	Tricuspid valve	Aorta	Aortic Valve
Pulmonary arteries	Pulmonary veins	Valve flaps	Valve muscles
Septum	Inferior Vena Cava	Superior Vena Cava	Pulmonary valve



36. *(1)*_____

37. _(2)_____

38. _(3)_____

39. _(4)_____

40. __(5)_____

41. __(6)_____

42. _(7)_____

43. _(8)_____

44. _(9)_____

45. _(10)_____

46. _(11)_____

47. _(12)_____

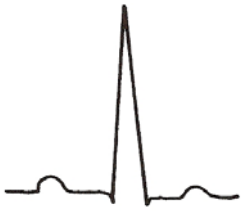
48. _(13)_____

49. _(14)_____

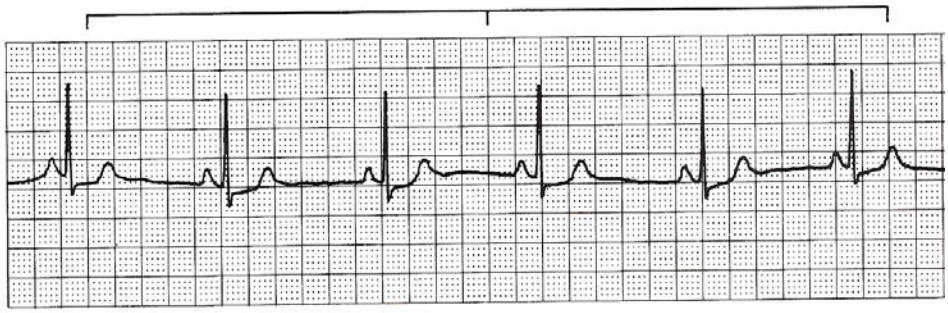
50. _(15)_____

51. *(16)*_____

52. Label the following parts of the heartbeat on this EKG strip: P, Q, R, S, T



53. What is the heart rate in beats per minute for the person with the following EKG? _____



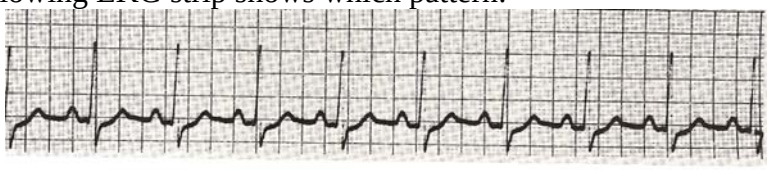
Multiple Choice Questions

54. If a child's mother has type O blood and the father has type AB blood, what blood types are possible for the child? Circle all that apply.
    i. Type A
    ii. Type B
    iii. Type AB
    iv. Type O

55. If a child's mother has type A blood and the father has type B blood, what blood types are possible for the child? Circle all that apply.
    i. Type A
    ii. Type B
    iii. Type AB
    iv. Type O

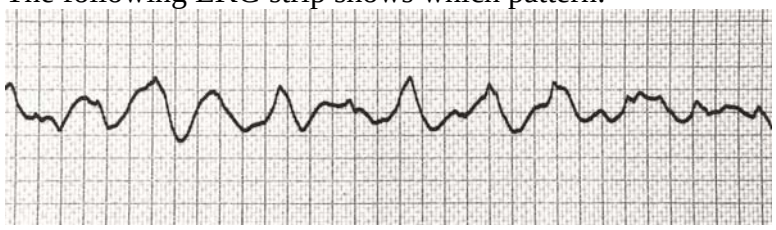
56. If a child's mother has type O blood and the father has type O blood, what blood types are possible for the child? Circle all that apply.
    i. Type A
    ii. Type B
    iii. Type AB
    iv. Type O

57. The following EKG strip shows which pattern:



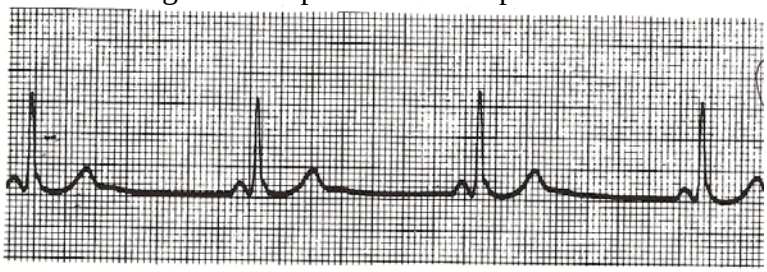
i. Normal Sinus Rhythm
ii. Bradycardia
iii. Tachycardia
iv. Ventricular fibrillation

58. The following EKG strip shows which pattern:



v. Normal Sinus Rhythm
vi. Bradycardia
vii. Tachycardia
viii. Ventricular fibrillation

59. The following EKG strip shows which pattern:



i. Normal Sinus Rhythm
ii. Bradycardia
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60. The following EKG strip shows which pattern:

i. Normal Sinus Rhythm
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Match the following with the definitions:

61. _____ Stroke Volume
62. _____ Cardiac Output
63. _____ End-diastolic volume
64. _____ End-systolic volume
65. _____ Mean arterial pressure
66. _____ Artery
67. _____ Vein
68. _____ Veinule
69. _____ Arteriole
70. _____ Capillaries
71. _____ Hematocrit
72. _____ Hemoglobin
73. _____ Rhesus factor
74. _____ Erythrocytes
75. _____ Thrombocytes
76. _____ MN blood typing
77. _____ Systolic pressure
78. _____ Diastolic pressure
79. _____ Leukocytes

A. Refers to D-antigen on the surface of red blood cells
B. Vessels that carry blood away from the heart
C. Vessels that carry blood to the heart
D. Volume of blood pumped by the ventricles per minute
E. The smallest of a body's blood vessels, important for exchange of oxygen, carbon dioxide, and other substances between blood and tissue cells
F. Volume of blood pumped by the left ventricle of the heard in one contraction
G. The iron containing oxygen transport metallopotein in the red blood cells in the blood
H. The proportion of blood volume occupied by red blood cells
I. Average arterial pressure during a single cardiac cycle
J. Small blood vessel that allows deoxygenated blood to return from the capillary beds to the larger blood vessels
K. Small diameter blood vessel that extend and branch out from larger vessels to capillaries
L. Volume of blood in a ventricle at the end of filling
M. Volume of blood in the ventricles just after it contracts
N. Red blood cells
O. White blood cells
P. Platelets
Q. A minor blood grouping system
R. The peak pressure in the arteries, which occurs near the beginning of the cardiac cycle
S. The lowest pressure - at the resting phase of the cardiac cycle

Match the following definitions to the diseases they describe:

Narcolepsy	Sickle-Cell Anemia	Hemophilia
Epilepsy	Alzheimer's Disease	Arterial Sclerosis
Sleep Deprivation	Huntington's Disease	Erythroblastosis Fetalis
Iron-Deficiency Anemia	Parkinson's Disease	

80. _____ It is caused by an autosomal dominant gene.

81. _____ It is caused by an autosomal recessive gene.

82. _____ It is caused by a X-linked gene.

83. _____ Risk factors include high blood pressure, high cholesterol, diabetes, obesity, smoking, and family history of heart disease.

84. _____ Characterized by plaques and tangles in the brain.

85. _____ Difficulty staying awake, regardless of the circumstances.

86. _____ Lack of adequate sleep.

87. _____ Common causes include blood loss, lack of adequate iron in diet, inability to absorb iron, or pregnancy.

88. _____ Particularly common among people with African, Spanish, Mediterranean, Middle Eastern and Indian ancestry.

89. _____ Caused by a deficiency in 1 or more clotting factors.

90. _____ Hardening of the arteries.

91. _____ Different types are grand mal, petit mal, tonic-clonic, atonic, or myoclonic.

92. _____ Characterized by quick jerky involuntary movements known as "the dance".

93. _____ Characterized by trembling, muscle rigidity, difficulty walking, problems with balance, and slowed movements.

94. _____ Diagnosed by a blood test that checks for Hemoglobin S.

95. _____ Caused by Rh or ABO blood incompatibility in unborn babies.

96. _____ Lack of adequate health red blood cells to carry oxygen to tissues.

97. _____ Caused by a disruption of the transmission of electrical signals inside the brain.

Effects of Drugs/addiction

Nicotine	Alcohol	Opiates
Caffeine	Methamphetamines	Barbiturate

Match the description to the drugs listed above.

98. _____ I can cause difficulty walking, blurred vision, slurred speech, slowed reaction times, impaired memory and with long term use, memory loss and dementia. Heavy use of me can also have a direct toxic effect on the heart and can damage it, leading to high blood pressure, cardiomyopathy, congestive heart failure, and stroke. Heavy use of me puts more fat into the circulation in your body, raising your triglyceride level.

99. _____In small doses, I reduce anxiety. But, I also reduce respiration, blood pressure and heart rate. At high does, I can cause respiratory depression. Use of me can lead to excessive sedation, coma and even death. Tolerance occurs, so a person begins to use more of me. Because I dissolve easily in fat, I can cross the blood brain barrier easily.

100. _____In the cardiovascular system, I increase heart rate and blood pressure and restricts blood flow to the heart muscle. I am a mild stimulant that has an effect upon the heart and brain. I stimulate the central nervous system causing irregular heartbeat and blood pressure, induce vomiting and diarrhea, and first stimulate, then inhibit glandular secretions. I also inhibit stomach secretions and stimulate bowel activity. At high doses I can produces convulsions and death. Chronic use of me leads to tolerance and a decrease in my effects. Tolerance occurs rapidly to some of the unpleasant effects, including dizziness, nausea and vomiting.

101. _____ I change the limbic system to produce increased feelings of pleasure, relaxation and contentment. I can act on the brainstem to stop coughing or slow breathing. The spinal cord transmits pain signals from the body. By acting here, I block pain messages and allow people to bear even serious injuries. Initially there is a feeling of euphoria followed by drowsiness, nausea, and vomiting. Users experience constricted pupils, watery eyes, and itching. Overdose produces slow and shallow breathing, clammy skin, convulsions, coma, and death. Dependence is likely. The use of contaminated syringes with me may lead to AIDS, endocarditis, and hepatitis.

102. _____ I stimulate the central nervous system. My effects may last anywhere from 8-24 hours. I am highly addictive. I may be seen in pill or powder form. I am a synthetic drug manufactured from chemicals. Some of my effects include paranoia, hallucination, aggressive behavior, increased heart rate, impaired speech, violent behavior, uncontrolled movement, numbness, possible brain damage, stroke and death.

103. _____I am a central nervous system stimulant. In moderate doses, I can increase alertness; reduce fine motor coordination, cause insomnia, and cause headaches, nervousness and dizziness. In massive doses, I am lethal. I adversely affect cholesterol and other lipid levels, homocysteine, blood pressure, arrhythmias and stress levels, increasing the risk of heart disease. I am ingested most often through common beverages or chocolate.