1. Know the meanings of the following terms:

central nervous system	hypoglycemia
neuron	seizure
neurotransmitters	epilepsy
autonomic nervous system	tonic-clonic seizures
sympathetic nervous system	status epilepticus
parasympathetic nervous system	serotonin
behavioural emergency	dopamine
stroke	mood disorder
cerebral vascular accident (CVA)	schizophrenia
FAST test	major depression
diabetes	mania
scene size up	bipolar disorder
insulin	anxiety disorder
insulin resistance	obsessive-compulsive disorder
Type I diabetes	psychosis
Type II diabetes	hallucination
hyperglycemia	phobias

2. Be able to label these structures on a diagram of a neuron. Know their functions.

dendrite	synapse	receptor
axon	terminal button	pre-synaptic neuron
nerve cell body	vesicle	post-synaptic neuron
myelin	neurotransmitter	

3. For each of the following medical conditions and mental illnesses, know the cause of the disease, how it affects the person, three symptoms, and how each is handled or treated:

tonic-clonic epileptic seizure	hyperglcyemia	bipolar disorder
stroke	hypoglycemia	obsessive compulsive
depression	schizophrenia	disorder

Review for Unit Test #2: Behavioural Emergencies

Practice Multiple Choice Questions

- 1. Unusual behaviour may occur if the brain gets: c) too much sugar
 - a) too little oxygen
 - b) too little sugar
- 2. Dendrites:
 - a) store neurotransmitters in their vesicles
 - b) are surrounded by myelin
- 3. A neuron communicates with other neurons by:
 - a) an electrical current jumping across the synapse
 - b) squeezing in a rhythm called peristalsis
 - c) releasing chemicals into the synapse
 - d) reabsorbing neurotransmitters from the synapse
- 4. The white fatty material that surrounds and insulates parts of some neurons is called:
 - a) plaque
 - b) myelin
- 5. The function of myelin is to:
 - a) keep the axon warm
 - b) protect neurons from physical harm
- 6. The end of the axon where neurotransmitters are stored in vesicles is called the:
 - a) nuclear membrane
 - b) axonal-dendritical sacs
- 7. Neurotransmitters are stored in neurons in:
 - a) vesicles
 - b) mitochondria d) ventricles
- 8. Which of the following statements is/are true about axons?
 - a) they are usually covered with myelin
 - b) they carry information away from the nerve cell body
 - c) there is usually only one axon per neuron
 - d) all of the above

9. Which of the following is a neurotransmitter?

- a) insulin
- b) glucose

- c) norepinephrine
- d) myelin
- 10. The central nervous system includes: a) only the brain
 - c) the brain, spinal cord and peripheral nerves b) only the brain and spinal cord
 - d) the brain, spinal cord and all nerves in the body
- 11. The part of the nervous system that we can not consciously control is called the:
 - a) automatic nervous system b) unconscious nervous system
- c) integral nervous system
- d) autonomic nervous system
- 12. In which of the following situations is the sympathetic nervous system activated?
 - a) during a very stressful exam
 - a) during a very stressful examb) when a person is feeling sympathetic

- c) carry messages toward the nerve cell body
- d) all of the above

d) all of the above

- c) adipose

 - d) neurotransmitters
 - c) insulate dendrites
 - d) increase the speed of electrical impulses

- c) when a person is depressed
- d) when a person is relaxed and drowsy

- c) terminal button

 - d) nerve cell body
- - c) the nucleus

- 13. When the parasympathetic nervous system is activated, the:
 - a) pulse rate decreases
 - b) pupils dilate (open)

- c) bronchioles dilate (open)
- d) digestion in the intestines slows down
- 14. The main hormone/neurotransmitter that is important in the "fight or flight" response is:
 - a) serotonin

- c) dopamine
- b) acetylcholine d) epinephrine
- 15. When a person's body is able to "rest and digest", which nervous system is activated?
 - a) the central nervous system
- c) the sympathetic nervous system
- b) the parasympathetic nervous system d) the gastrointestinal nervous system
- 16. As an EMT you are called to a shopping mall to help a 39 year old woman who has fallen and is confused. To assess if she has had a stroke, you should:
 - a) perform the FAST test

- c) measure her tPA levels
- a) perform the FAST testb) check her blood glucose levelsc) measure her tPA levelsd) measure her vital capacity
- 17. A person is staring blankly into space. This person may be:
 - a) having an epileptic seizure
- c) having a stroke
- d) having any of these problems

18. During the scene size-up when you assess someone who is behaving unusually, you must consider:

a) the person's culture b) the context (situation)

b) hypoglycemic

- c) whether the person may have a head injury d) all of the above
- 19. Which of the following is a sign that a person may have had a cerebral vascular accident (CVA)?
 - a) pinpoint (constricted) pupils c) unequal pupils d) all of the above
 - b) dilated pupils
- 20. As an EMT, you are called to the home of a known diabetic who is smashing dishes and behaving violently. You should:
 - a) restrain the person and put a small amount of sugar (glucose) between their cheek and gums
 - b) approach the man cautiously and be prepared to defend yourself
 - c) wait until the person goes unconscious before helping them
 - d) radio to the dispatcher and ask them to send the police
- 21. A person complains that someone is shouting inside his head. He keeps hitting his head to try and make the voices stop. This person is most likely:
 - a) having an epileptic seizure c) schizophrenic
 - d) any of the above b) hypoglycemic
- 22. Which of the following is **NOT** part of the FAST test?
 - a) look at their face for signs of unevenness
 - b) look at their body to see if they can move their arms and legs equally
 - c) measure their blood glucose levels to see if they are fasting
 - d) ask them to repeat a simple sentence
- 23. A person is excessively thirsty, has an unusual fruity odour on their breath and gradually becomes more and more confused. They are likely:
 - a) hyperglcyemic
 - b) hypoglycemic

- c) having a stroke
- d) stoned on Ecstasy
- 24. A person with Type I diabetes usually:
 - a) does not make any insulin
 - b) makes only a small amount of insulin
- c) produces too much insulin
- d) is resistant to insulin

- 25. Which of the following statements is/are true about Type I diabetes?
 - a) it usually begins in childhood
 - b) the person makes only small amounts of insulin
 - c) the person takes pills to keep their level of blood sugar low
 - d) all of the above
- 26. Which of the following statements is/are true about Type II diabetes?
 - a) the pancreas does not make any insulin c) it is not serious and does not require treatment
 - b) it is common in obese, older people d) all of the above
- 27. What does the phrase "4 to 8, feeling great" refer to?
 - a) blood levels of oxygen should be between 4 and 8% to prevent a stroke
 - b) children between the ages of 4 8 years are the happiest
 - c) blood levels of glucose should be between 4 and 8 mmol/L to be healthy
 - d) drug addicts take between 4 and 8 hits of cocaine a day to feel good
- 28. High blood sugar levels over a long period of time may cause:
 - a) a person to be smarter because the brain has more sugar
 - b) a person to be more active and higher energy because they have more sugar
 - c) higher risk of damage to the brain, kidneys and retinas in the eye
 - d) all of the above

29. Insulin resistance means that the person's pancreas:

- a) is resistant to making insulin
- a) is resistant to making insulinb) makes the wrong kind of insulinc) makes insulin but the bod) makes too much insulin
- c) makes insulin but the body's cells don't respond to it
- 30. A paramedic measures a person's blood sugar level. It is 16.2 mmol/L. This person has:
 - a) hyperglycemia b) hypoglycemia

a) having a stroke

- c) normal blood glucose levels
- d) hypertension
- 31. A diabetic person is slurring their speech, uncoordinated and acting drunk. This person may be:
 - c) hypoglycemic
 - b) drunk

- d) all of the above
- 32. A person is unconscious. An EMT puts a small amount of glucose between their cheek and gum. Within a few minutes, the person is awake, alert and much improved. The person likely had:
 - a) a stroke

- c) an epileptic seizure
- b) hyperglycemia

a) restrain the person

- d) hypoglycemia
- 33. Which of the following is/are considered to be chronic?
 - c) Alzheimer's disease
 - a) epilepsy b) diabetes d) all of these are chronic diseases or conditions
- 34. If you witness a person having an epileptic seizure, you should:
 - c) monitor the person during and after the seizure
 - b) put a stick or spoon in their mouth
- 35. When a person has a seizure that lasts longer than 5 minutes, or has two seizures very close together:
 - a) it may be status epilepticus
 - b) it may be life-threatening d) all of the above
- 36. Which of the following statements is/are true about mental illness?
 - a) symptoms often begin in the late teens or early twenties
 - b) most mental illnesses are caused by a combination of genetic and environmental factors
 - c) many mentally ill people are poor or homeless
 - d) all of the above

- c) you should transport to the hospital immediately
- d) all of the above

- 37. A mental illness could be:
 - a) a disturbance in thought or emotions
 - b) caused by the use/abuse of drugs
- 38. Depressive illness is classified as a:
 - a) mood disorder
 - b) anxiety disorder
- 39. Obsessive-compulsive disorder (OCD) is:
 - a) a mood disorder
 - b) periods of mania and depression
- 40. Increased sensitivity to dopamine or high levels of dopamine in the brain may be associated with:
 - a) epilepsv c) bipolar disorder
 - b) schizophrenia (psychosis)
- 41. Which of the following is/are anxiety disorders?
 - a) schizophrenia c) bipolar disorder
 - b) obsessive-compulsive disorder d) all of the above
- 42. In which of the following situations would yelling and screaming be a sign of mental illness?
 - a) after winning a \$24 million lottery
 - b) after witnessing a terrible train accident d) after a pleasant afternoon with your best friend
- 43. Which of the following statements about mental illness is/are false?
 - a) mental illness is contagious
 - b) people with mental illness never get better
 - c) people with mental illness tend to be violent
 - d) all of these statements are false
- 44. Which of the following is/are problems that can occur at the synapse?
 - a) the receptors on the post-synaptic neuron may be the wrong shape for the neurotransmitter
 - b) the post-synaptic neuron may not make enough receptors
 - c) the pre-synaptic neuron may not make enough neurotransmitter
 - d) all of the above

45. When an electrical impulse reaches the end of an axon, it causes:

- a) vesicles in the pre-synaptic neuron to release neurotransmitters into the synapse
- b) vesicles in the post-synaptic neuron to release neurotransmitters into the synapse
- c) receptors on the pre-synaptic neuron to release neurotransmitters into the synapse
- d) receptors on the post-synaptic neuron to release neurotransmitters into the synapse
- 46. Schizophrenia is associated with:
- c) too little serotonin

a) too much dopamine b) too little dopamine

- d) a cold mother and an absent or disinterested father
- 47. A person is having hallucinations when they:
 - a) see or hear something that isn't really there
 - b) feel compelled to perform an action or ritual and cannot stop
 - c) engage in drug seeking behaviour, even though it will have serious negative consequences
 - d) have feelings of worthlessness along with changes is sleeping, eating and social habits
- 48. A person washes their hands frequently and constantly counts and rearranges things. They could have:
 - a) obsessive-compulsive disorder
- c) germophobia
- b) bipolar disorder d) schizophrenia

- c) caused by a genetic (hereditary) factor
- d) all of the above
- c) psychotic disorder
- d) personality disorder
- c) associated with low levels of dopamine in the brain
- d) treated by increasing levels of serotonin in the brain

c) after learning you are pregnant after years of trying

- d) all of the above

- 49. Common symptoms of mania is/are:
 - a) slow, slurred speech
 - b) very low self-esteem

- c) rapid speech and reckless behaviour
- d) all of the above
- 50. Which mental illnesses are associated with problems in the level of serotonin in the brain?
 - a) both depression and bipolar disorder
 - b) both bipolar disorder and schizophrenia
 - c) both depression and obsessive-compulsive disorder
 - d) depression, schizophrenia and bipolar disorder
- 51. Lithium is used to treat:
 - a) schizophrenia

- c) bipolar disorder
- b) obsessive-compulsive disorder d) depression
- 52. Which of the following symptoms are common for schizophrenia?
 - a) severe unhappiness, worthlessness and self-blame
 - b) over-whelming fear and anxiety
 - c) experiencing hallucinations and delusions, hearing voices
 - d) periods of severe depression followed by periods of mania
- 53. Major depressive disorder affects which age group(s)?
 - a) young children c) the elde
 - b) teenagers

- c) the elderly
- d) people of all ages

high mood

neutral mood

low mood

D

B

- 54. Refer to the graph showing fluctuations in mood. Which curve would be typical of bipolar disorder?
 - a) curve A
 - b) curve B
 - c) curve C
 - d) line D
- 55. What is the main factor that determines the ability of neurons to communicate with one another?
 - a) how strongly they are attached together at the synapse
 - b) how strongly they conduct electricity
 - c) the amount of neurotransmitter in the synapse between two neurons
 - d) the amount of enzyme in the synapse between two neurons
- 56. Prozac works by:
 - a) binding to serotonin receptors on the post-synaptic neuron
 - b) blocking the reabsorption of serotonin by the pre-synaptic neuron
 - c) causing the pre-synaptic neuron to release larger amounts of serotonin
 - d) all of the above
- 57. Haloperidol is used to treat schizophrenia. It acts by:
 - a) blocking dopamine receptors on the post-synaptic neuron
 - b) blocking the reabsorption of serotonin by the pre-synaptic neuron
 - c) increasing the release of endorphins in the brain
 - d) all of the above
- 58. Which of the following will increase the level of serotonin in the synapse?
 - a) blocking the pre-synaptic neuron from re-absorbing serotonin from the synapse
 - b) increasing the amount of enzyme in the synapse that breaks down serotonin
 - c) eating hot peppers
 - d) all of the above

- 59. All people have rituals or habitual ways of doing things. At what point are rituals considered to be obsessive-compulsive behaviour (OCD)?
 - a) when the person is no longer aware that they are performing them
 - b) when performing the rituals interferes with the person's ability to lead a normal life
 - c) when the person performs the ritual more than three times a day
 - d) all of the above

60. Many drugs that are used to treat mental illness:

- a) act by mimicking or changing the levels of a neurotransmitter in the brain
- b) have serious and unpleasant side effects
- c) cause the person to feel "flat" and emotionally dulled
- d) all of the above
- 61. One of the biggest challenges in treating people with mental illness is that they:
 - a) often resist taking their medications
 - b) abuse their medications
- c) are usually below average intelligence
- d) all of the above

Answers:

1. d	11. d	21. c	31. d	41. b	51. c	61. a
2. c	12. a	22. c	32. d	42. d	52. c	
3. c	13. a	23. a	33. d	43. c	53. d	
4. b	14. d	24. a	34. c	44. d	54. a	
5. d	15. b	25. a	35. d	45. a	55. c	
6. c	16. a	26. b	36. d	46. a	56. b	
7. a	17. d	27. с	37. d	47. a	57. a	
8. d	18. d	28. c	38. a	48. a	58. a	
9. c	19. d	29. c	39. d	49. c	59. b	
10. b	20. d	30. a	40. b	50. c	60. d	

Review for Unit Test #2: Behavioural Emergencies

1. Label the following diagram of a neuron:



Presynaptic ce

ostsymaptic cell

2. Label the parts of the synapse. Describe the series of events that takes place when an electrical impulse travels down the axon.



- 4. Explain how hyperglycemia is different from hypoglycemia. Which one is more dangerous in the short term? Why?
- 5. List five different events or conditions that may cause a seizure.
- 6. You are an off-duty firefighter. You see a crowd of people in a public park so you walk over to see what is happening. They are watching a young man who is having a tonic-clonic seizure. List five things that you should do. List three things that you (or anyone else) should NOT do.

- 7. What neurotransmitter is decreased in the brains of people with Parkinson's disease?
- 8. List four different ways that a drug can work to increase the level of a neurotransmitter such as serotonin or dopamine in the synapses in the brain.
- 9. What are four common symptoms of major depression?
- 10. What are four common symptoms of schizophrenia?
- 11. What are four common behaviours of people with bipolar disorder when they are feeling manic?
- 12. Explain why obsessive-compulsive disorder (OCD) is classified as an anxiety disorder.
- 13. How is Type I diabetes different from Type II diabetes?
- 14. Your friend was diagnosed with major depression and was prescribed Prozac. She has been taking the Prozac for three months and feels much better. Because she now feels better, she wants to stop taking her medication. What should you tell her?

	Sympathetic Nervous System	Parasympathetic Nervous System
Major neurotransmitter		
Phrase to describe it's action		۰۰ ۲۶
Effect on heart rate and why		
Effect on blood pressure		
Effect on blood flow to brain		
Effect on blood flow to muscles		
Effect on pupils and why		
Effect on bronchioles and why		
Effect on intestines		

15. Complete the following chart to compare the sympathetic and parasympathetic nervous systems: