Multiple Choice Questions: Circle the correct answer. (3 points each)

1. Which of these is NOT an important aspect of development?
   a. What abilities do children develop?
   b. How do children develop?
   c. When do children develop an ability?
   d. **All of the above are important aspects of development.**

2. Disorders affecting myelin can lead to
   a. Multiple Sclerosis
   b. Schizophrenia
   c. Bipolar Disorder
   d. **All of the above**

3. You think the professor has a cool accent. Your friend agrees. This is an example of good…
   a. External validity
   b. **Inter-rater reliability**
   c. Internal validity
   d. Test-retest reliability

4. Which of the following statement about sex is true?
   a. Females are born more often than males.
   b. Females die earlier than males.
   c. **More males are likely to be red-green colorblind.**
   d. Males have 2 X chromosomes.

5. Jimmy Kimmel attaches a fake lie detector to children. He asks them different questions based on the individual responses the child gives. Which of these best describes what he did?
   a. Naturalistic Observation
   b. **Clinical Interview**
   c. Structured Interview
   d. Structured Observation

6. Most developmentalists recognize that every characteristic we possess is due to
   a. Nature
   b. Nurture
   c. **An interaction of nature and nurture**
   d. Either only nature or only nurture
7. Which of these is NOT an enduring theme in child development?
   a. The active child
   b. Individual differences in development
   c. Parenting
   d. Nature and Nurture

8. A child’s genotype is most influenced by
   a. Parent’s genotype
   b. Child’s phenotype
   c. Parent’s phenotype
   d. Child’s Environment

9. Please select the correct order of periods of prenatal development.
   a. Germinal → Embryonic → Fetal
   b. Embryonic → Fetal → Germinal
   c. Germinal → Fetal → Embryonic
   d. Embryonic → Germinal → Fetal

10. A neural synapse for communication is located between
    a. Cell bodies of different neurons
    b. Dendrites of different neurons
    c. The cell body of one neuron and the dendrite of another neuron
    d. None of the above

Short answers

1. What is the difference between continuous and discontinuous change? Provide an example of each. (7 points)
   - Continuous change is quantitative change (i.e., more of a given trait), while discontinuous change is qualitative change (i.e., large enough changes that the trait seems qualitatively different from a previous trait). (3 points)
   - An example of continuous change might be a pine tree growing over time. (2 points)
   - An example of discontinuous change might be a caterpillar turning into a chrysalis and finally, a butterfly. Use your judgment on the examples provided. (2 points)

2. To observe mathematical development, a researcher tested the same students while they were in second grade and then once again 3 years later when the students were in fifth grade. What kind of design did the researcher use? What is one advantage of this design? What is one disadvantage? (7 points)
   - Longitudinal Design (1 point)
   - Advantage (3 points, only needs to mention one advantage)
     o Can identify common patterns of development
     o Can study individual differences
   - Disadvantage (3 points, only needs to mention one disadvantage)
3. Why do twin studies compare the traits of identical twins to fraternal twins? Why is it useful to study identical twins that are adopted into different homes? (7 points)
   - Twin studies are comparing identical twins to fraternal twins to determine how varying levels of genetic similarity effects a given trait (3 points)
   - It is useful to study identical twins that are adopted into different homes because you see the effect of different environments on people with the same genes (i.e., it helps to isolate the effect of the environment from the effect of genes). (4 points)

4. Provide two reasons why is it important to study child development? (7 points)
   Potential answers: 4 points for the first reason/explanation. 3 points for the second.
   - Raising Children – Knowledge of child development can help parents face rearing and educational challenges.
   - Choosing Social Policies – Knowledge of children permits informed decisions about social policy questions that affect children.
   - Understanding Human Nature – Studying child development provides important insights into some of the most intriguing questions regarding human nature.
   - People Change – we are different at different points in time. Studying people at one moment isn’t optimal for studying change.
   - Use your own judgment for other answers and justifications that seem reasonable.

5. Briefly describe each overlapping stage of brain development. (6 points, 1 point for each stage)

<table>
<thead>
<tr>
<th>Cell Birth (Neurogenesis)</th>
<th>The early brain contains stem cells that divide to form more stem cells.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell Migration</td>
<td>Neurons move from the neural tube to form different parts of the brain.</td>
</tr>
<tr>
<td>Cell Differentiation</td>
<td>Stem cells divide to form precursor cells, which differentiate to form specialized neurons and glial cells.</td>
</tr>
<tr>
<td>Cell Growth and Maturation</td>
<td>Neurons have simple dendritic trees that become more complex with age. Any mention of synaptogenesis also counts.</td>
</tr>
<tr>
<td>Cell Death (Apoptosis)</td>
<td>Neurons that don’t project to a viable target go through cell death (use it or lose it principle).</td>
</tr>
<tr>
<td>Glial Development</td>
<td>Myelin coats neurons to improve speed and efficiency of</td>
</tr>
</tbody>
</table>
and Myelination transmission. Glial development include cells that supply nutrition and oxygen to neurons and remove dead neurons. 1 point for each description. If they mention one aspect of each, they should get a point.

6. The number of ice cream cones sold in a given city is positively correlated with the number of gun-related deaths in the same city. There are two principles that suggest this correlation does not imply causation (i.e., this correlation does not mean buying more ice cream cones causes more gun related deaths). Explain each principle in the table below and how it applies to this correlation. (6 points)

<table>
<thead>
<tr>
<th>Direction of Causation</th>
<th>Third Variable Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instead of x causing y, y might cause x (1 point). Gun-related deaths may cause more ice cream cone sales (2 points).</td>
<td>A third variable (z) may cause both x and y (1 point). In this situation population could serve as a third variable. Larger populations may cause more ice cream cone sales and cause more gun-related deaths. Any example of a third variable should get credit (2 points).</td>
</tr>
</tbody>
</table>

7. Why might two parents with curly hair have a child with straight hair? (8 points)
- Curly hair must be a dominant trait (2 points)
- Straight hair must be a recessive trait (2 points)
- Parents must both be heterozygous to pass on a recessive trait (1 point for using the term heterozygous, 3 points for the concept)

8. What is the difference between a clinical interview and a structured interview? What is the goal of each type of interview? (7 points)
- Clinical interview has different questions for each child based on their responses, while a structured interview has the same questions for each child, regardless of their responses (3 points)
- Clinical interview goal (2 points) – when the goal is to collect in depth information on an individual child
- Structured interview goal (2 points) – when the goal is to get self reports on the same topics from everyone being studied (group level)
- Other answers that seem reasonable should get credit.

9. List the four lobes of the brain and one function of each of those lobes. (8 points)

<table>
<thead>
<tr>
<th>Brain Lobe</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frontal</td>
<td>Organizes behavior, responsible for planning</td>
</tr>
<tr>
<td>Temporal</td>
<td>Memory, visual recognition, auditory information, processing of emotion</td>
</tr>
<tr>
<td>Parietal</td>
<td>Spatial processing, integrating sensory input with information in memory</td>
</tr>
<tr>
<td>Occipital</td>
<td>vision</td>
</tr>
</tbody>
</table>


1 point for identification of each lobe and 1 point for description of a single function for each. If they provide other functions that seem reasonable, give them a point for it.

10. What is a teratogen? Identify two teratogens and identify an effect of each on fetal development. (7 points)

Teratogen - Any external agent that can cause damage or death during prenatal development (3 points)

- Potential Answers: 1 point for each identified teratogen and 1 point for each effect.
  - Maternal alcoholism $\rightarrow$ fetal alcohol syndrome (mental retardation, facial deformities)
  - Cigarette smoking $\rightarrow$ retarded growth, LBW
  - Cocaine $\rightarrow$ physical deformities (eyes, bone, genitals, kidney, heart)
  - Heroine and meth $\rightarrow$ LBW, breathing problems, drug addiction, attention problems, delayed motor development
  - Marijuana $\rightarrow$ disturbed sleep, startles, tremors, some evidence of cognitive deficits

Extra Credit: Circle the correct answer.
Why did Rony start studying child development?
   a. To learn about future parenting.
   b. To figure out what he could and could not blame his father for.
   c. Pre-med wasn’t working out.
   d. The hot professor was teaching the class that semester.