#1-#12 MULT. CHOICE QUESTIONS: CHOOSE THE ONE BEST ANSWER

1. Two spherical sub-cellular objects with diameters of 25 nm can be resolved with:
a) the naked eye
b) a light microscope only
c) an electron microscope only
d) a light microscope and an electron microscope
e) sectioning after paraffin embedding

2. Which of the following is MOST intensely stained by hematoxylin:
a) plasmamembranes
b) golgi apparatus
c) rough endoplasmic reticulum
d) smooth endoplasmic reticulum
e) microtubules

3. Which of the following are MOST intensely stained by eosin:
a) intermediate filament proteins
b) lipid droplets
c) TGN
d) nuclei
e) chromosomes

4. Which of the following is most often performed after a fixed specimen has been coated with a thin layer of gold:
a) light microscopy
b) transmission electron microscopy
c) scanning electron microscopy
d) freeze fracture electron microscopy
e) confocal microscopy

5. Normally, which of the following can give rise to any cell type in the body:
a) pluripotent cell
b) totipotent cell
c) differentiated cell
d) apoptotic cell
e) white blood cell

6. Regarding the embryoblast, which of the following is CORRECT:
a) gives rise to the syncytiotrophoblast
b) gives rise to cytotrophoblasts
c) gives rise to the decidua basalis
d) all of the above
e) none of the above

7. Which of the following occurs during gastrulation:
a) formation of the hypoblast
b) formation of the neuroectoderm
c) formation of the ectoderm
d) all of the above
e) none of the above

8. Ingressing mesenchymal cells that move through the primitive streak will contribute to the formation of:
a) the endoderm
b) the notochord
c) the somites
d) all of the above
e) none of the above

9. Which of the following is most important for dorsal cell patterning in the portion of the neural tube that will form the spinal cord:
a) high levels of bone morphogenetic protein
b) high levels of sonic hedgehog
c) the intermediate mesoderm
d) the lateral plate mesoderm
e) the extraembryonic mesoderm

10. Regarding 'Cell Theory', which of the following is NOT correct:
a) hereditary information is passed from cell to cell during division
b) energy flow occurs within cells
c) cells are the fundamental unit of structure in living things
d) cells are the fundamental unit of function in living things
e) new cells can be assembled from basic chemical building blocks (ie. *de novo*) in multicellular organisms

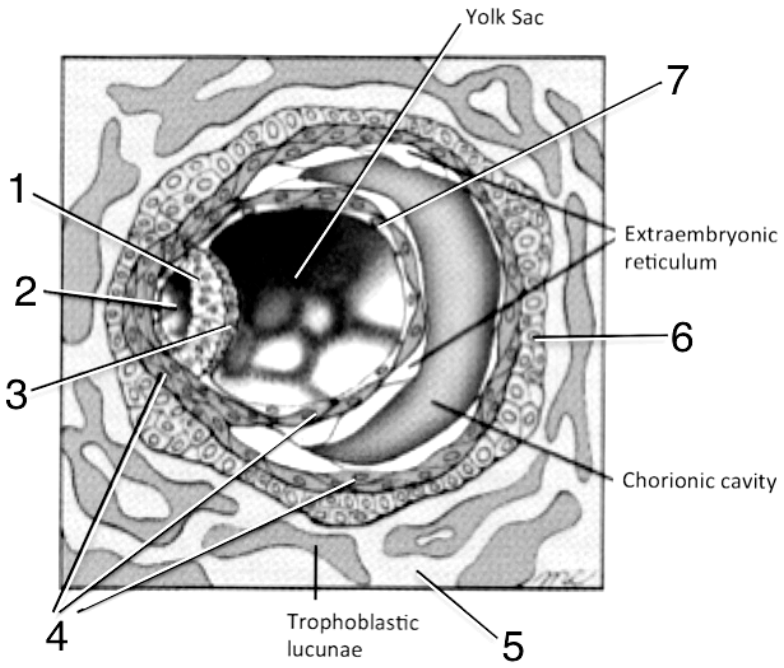
11. Which of the following moves material across membranes down a concentration gradient and thus does not require energy:
a) symports
b) antiports
d) coupled transporters
d) active transport
e) passive transport

12. Which of the following triggers the ER-associated degradation response?
a) improper vesicle tethering at the cis-face of the Golgi
b) improper protein folding in the lumen of the ER
c) improper assembly of the large ribosomal subunit in the nucleus
d) improper recognition of the signal sequence on a protein polypeptide by the signal recognition particle
e) complete lack of a signal sequence on a protein polypeptide

End of Multiple Choice Questions - Please Proceed to Short Answer Questions

#13-#20 SHORT ANSWER QUESTIONS: ANSWER AS REQUESTED

Fig 01: Fully Implanted Embryo (Day 12-13)



13. In Fig 1, which numbered structure will give rise to the primitive streak during gastrulation:
(write the number) _____

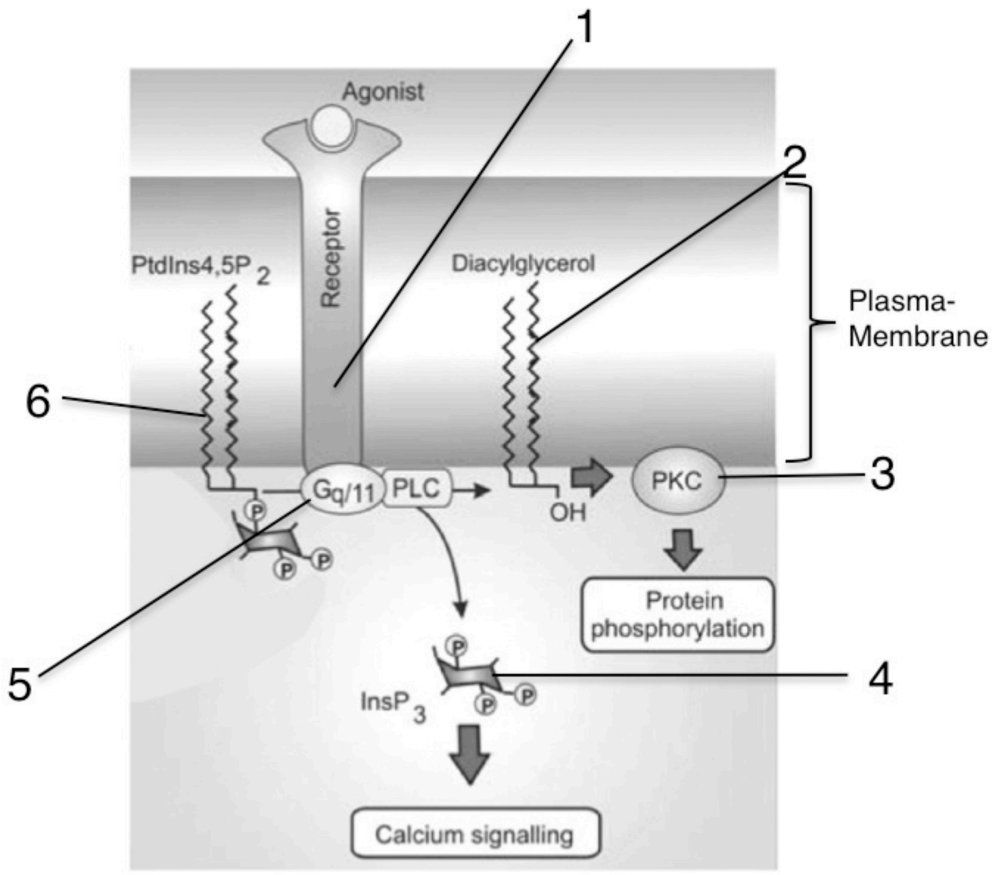
14. In Fig 1, which numbered structure gives rise to the embryonic/fetal blood vessels of the placenta:
(write the number) _____

15. In Fig 1, which numbered structure consists of cells that are invasive and multinucleate:
(write the number) _____

16. In Fig 1, what is the name of structure #3
(Name the structure) _____

End of Questions Related to Fig 1

Fig 02: G Protein-Coupled Receptor Pathway



17. In Fig 2, which numbered structure is a cytoplasmic 'messenger':
(write the number) _____

18. In Fig 2, which numbered structure is able to hydrolyze bound GTP:
(write the number) _____

19. In Fig 2, which numbered structure is an integral membrane protein:
(write the number) _____

20. In Fig 2, why is structure #6 located in the plasmamembrane:
(write an explanation) _____

End of 01SampleSetQuestions