

Cell biology final archive



- 1- Which of the following contain the multiple arrangement of microtubules?
 - a- Cilia.
 - b- Centrioles.
 - c- Microvilli.
 - d- Nuclear Lamina.
 - e- Nuclear Pore Complex.
- 2- The phase of mitosis in which the sister chromatids separate from each other.
 - a- Prophase
 - b- Metaphase
 - c- Anaphase
 - d- Telophase
 - e- Cytokinesis
- 3- Exchange of the genetic fragments between the homologous chromosomes lead to__?
 - a- Fertilization.
 - b- Production of two identical cells
 - c- Genetic recombination
 - d- Increase the incidence of genetic diseases
 - e- Rapid repair of the cells.
- 4- All the following are true about the paraffine technique EXCEPT?
 - a- Fixation / Iosmiumtetroxide
 - b- Dehydration / alcohol
 - c- Impregnation / softwax
 - d- Staining / trichrome
- 5- Most of medications used today exert their effects by influencing which structures in the cell membrane?
 - a- Tyrosine kinase receptors
 - b- Ligand-gated ion channel receptors
 - c- Growth factors
 - d- G-protein coupled receptors
 - e- Cholesterol
- 6- The synthesis (S) phase is characterized by:
 - a- Cell division
 - b- The division of cytoplasm.
 - c- DNA replication
 - d- Replication of mitochondria and other organelles.
 - e- Nuclear division
- 7- Which of the following is NOT a source for stem cells?
 - a- Umbilical cord blood
 - b- Periosteum of bone



- c- Early embryo
 - d- Sperms and eggs
 - e- Bone marrow
- 8- Which of the following statements about the nuclear envelope is TRUE?
- a- The inner and outer membranes are continuous
 - b- The nuclear pores connect the nucleoplasm and the Extracellular matrix
 - c- The nuclear pores are made of a simple gateway structure
 - d- The space between the inner and outer membranes contains the nuclear lamina.
 - e- Nucleic acids cannot move through the nuclear pores
- 9- Which of the following regarding modes of cell signaling is INCORRECTLY matched?
- a- Direct cell to cell signaling Juxtacrine
 - b- Intracellular signaling Autocrine
 - c- Long distance signaling Endocrine
 - d- Local signaling through messenger molecules
 - e- Neuronal signaling through endogenous chemicals paracrine
_Synaptic
- 10- A chromosome is the thickest during
- a- Anaphase
 - b- Prophase
 - c- Interphase
 - d- Metaphase
 - e- Telophase
- 11- What kinds of molecules pass through a cell membrane most easily?
- a- Large and hydrophobic
 - b- Small and hydrophobic
 - c- Large polar
 - d- Ionic
 - e- Monosaccharides such as glucose
- 12- The chromatids are pulled apart, to opposite ends of the cell
- a- Metaphse
 - b- Anaphase
 - c- Prophase
 - d- Telophase
 - e- Cytokinesis
- 13- A fertilized egg that can develop into all the types of cells in the body is considered to be:
- a- Multipotent
 - b- Totipotent



- c- Unipotent
 - d- Pluripotent
 - e- Oligopotent
- 14- Which of the following hormones pass through the plasma membrane of the cell and have receptor molecules in the cytoplasm?
- a- Insulin
 - b- Glucagon
 - c- Epinephrine
 - d- Testosterone
 - e- Histamine
- 15- Gene therapy, is a technique used to cure inherited diseases by?
- a- Repairing the faulty gene
 - b- Adding new cells to the body
 - c- Cloning the faulty gene
 - d- Introducing the correct copy of the gene
 - e- Producing monoclonal antibodies
- 16- Which of the following signal molecules is NOT used for extracellular signaling?
- a- Paracrine
 - b- Synaptic
 - c- Endocrine
 - d- Cyclic AMP
 - e- Autocrine
- 17- The mode of signaling between neurons of the nervous system is called
- a- Juxtacrine signaling
 - b- Paracrine signaling
 - c- Synaptic signaling
 - d- Hormonal signaling
 - e- Autocrine signaling
- 18- Which of the following set of features describes stem cells CORRECTLY?
- a- Self-renewal / differentiation
 - b- Meiosis / mitosis
 - c- Specialized / undifferentiated
 - d- Meiosis / binary fission
 - e- Proliferation / cytokinesis
- 19- All the following form the structure of the nuclear envelop EXCEPT:
- a- External (outer) nuclear membrane
 - b- Nuclear pores
 - c- Internal (inner) nuclear membrane I
 - d- Chromatin



- e- Lamina densa (nuclear lamina)
- 20- Which of the following produces identical nuclei in cells?
- a- Pollination
 - b- Osmosis
 - c- Mitosis
 - d- Fertilization
 - e- Cytokinesis
- 21- The cell cycle control system gives the cell signals to stop or go ahead through
- a. Phases
 - b. Checkpoints
 - c. Internal factors
 - d. External factors
 - e. Stages
- 22- iPS cells are derived from
- a- Embryonic stem cells
 - b- Morula
 - c- Adult somatic cells
 - d- IVF embryos
 - e- Germ cells
- 23- One of the following is INCORRECT about chromatin beads on a string?
- a- Nucleosomes is composed of two copies of histone molecules
 - b- H1 histone is the linker histone
 - c- It is composed of repeating subunits called nucleobase
 - d- DNA wrapped almost twice around eight histone molecules
 - e- It appears in the interphase of the cell
- 24- The liver is involved in detoxification of many poisons and drugs Which of the following structures is primarily involved in this process and therefore abundant in liver cells?
- a- Rough ER
 - b- Smooth ER
 - c- Golgi apparatus
 - d- Nuclear envelope
 - e- Centromere
- 25- The technique used to locate specific genes in chromosomes is called__?
- a- Electrophoresis
 - b- Chromatography
 - c- Immunohistochemistry
 - d- Cell fractionation
 - e- Fluorescent in situ hybridization
- 26- An animal cell lacking oligosaccharides on the external surface of its plasma membrane would likely be impaired in which function?



- a- Transporting ions against an electrochemical gradient
 - b- Cell-cell recognition
 - c- Maintaining fluidity of the phospholipid bilayer
 - d- Attaching to the cytoskeleton
 - e- Establishing the diffusion barrier to charged molecules
- 27- Which of the following CORRECTLY matches an organelle with its function?
- a- Mitochondrion..... manufacture of proteins
 - b- Nucleus.....cellular respiration
 - c- Ribosomemanufacture of lipids
 - d- Lysosome.....movement
 - e- Central vacuole.....storage
- 28- Cells in G0 phase of cell cycle?
- a- Exit cell cycle
 - b- Enter cell cycle
 - c- Suspend cell cycle
 - d- Terminate cell cycle
 - e- Programmed cell growth
- 29- The sequence of growth and division of a cell
- a- cell cycle
 - b- Mitosis
 - c- Anaphase
 - d- Cancer
 - e- Telophase
- 30- Which of the following is NOT correct about mitosis?
- a- Repair of damaged tissue
 - b- Asexual reproduction in somatic cell
 - c- Growth of the tissue
 - d- Maintenance of the tissues
 - e- Production of gametes
- 31- One of the followings events is NOT occurred during mitosis.
- a- Two identically daughter cells are formed
 - b- Mitotic spindle is formed
 - c- Preceded by interphase
 - d- Formation of tetrad
 - e- Karyokinesis and cytokinesis.
- 32- Cells spend most of their life in:
- a- Interphase
 - b- Mitosis
 - c- S-Stage
 - d- G2 phase
 - e- G1 phase



- 33- The resolution power of naked eye equals_?
a- 0.2 millimeter
b- 0.2 nanometer (nm)
c- 0.2 micrometer
d- 0.5 micrometer
e- 10 angstroms
- 34- Study of tissues after doing experiments outside the body is called
a- Cell fractionation
b- In vitro studies
c- In vivo studies
d- Tissue culture
e- Histochemistry
- 35- Stem cells that allow renewal of specific cell types are called___
a- Oligopotent
b- Unipotent
c- Multipotent
d- Totipotent
e- Pluripotent
- 36- Regarding potency, monocytes are considered as
a- Multipotent cells
b- Totipotent cells
c- Unipotent cells
d- Pluripotent cells
e- Oligopotent cells
- 37- Human somatic cells contain chromosomes, while gamete cells contain chromosomes?
a- 46; 23
b- 23:23
c- 46:46
d- 23:46
e- 46; 22
- 38- Organelles other than the nucleus that contain DNA include?
a- Ribosomes.
b- Mitochondria.
c- Cytoskeleton
d- Rough ER
e- Smooth ER
- 39- Which of the following is TRUE about G protein-coupled receptors?
a- G protein is attached to the cytoplasmic side of the nuclear membrane
b- Guanosine diphosphate (GDP) switch on the G protein
c- Binding of the ligands to the receptors activates the kinase enzyme



- d- *CAMP is required as a second messenger to elicit a cellular response*
e- *Binding of the ligands to the adenylyl cyclase enzyme switch off the protein*
- 40- *Where is the genetic material found in a prokaryotic cell?*
a- *Nucleoid*
b- *Nucleotide*
c- *Nucleus*
d- *Nucleolus*
e- *Nucleosome*
- 41- *The cell membrane pinches in, dividing the cytoplasm into 2 cells?*
a- *Metaphase*
b- *Anaphase*
c- *Prophase*
d- *Telophase*
e- *Cytokinesis*
- 42- *During this stage in interphase, the cell grows, carries out normal functions, and copy their organelle___:*
a- *G1*
b- *Synthesis*
c- *G2*
d- *Mitosis I*
e- *Cytokinesis*
- 43- *Many of the extracellular signal molecules that regulate inflammation are released locally at the site of infection. What form of cell-to being used?*
a- *Paracrine*
b- *Juxtracrine*
c- *Endocrine*
d- *Apocrine*
e- *Synaptic*
- 44- *Proteins are a critical part of any cell membrane. Which of the followings is NOT a role of these membrane proteins?*
a- *Form a wide range of cell receptors*
b- *Maintain membrane fluidity*
c- *Provide enzymatic activity I*
d- *Cell-cell recognition and adhesion*
e- *Provide a passage for large molecules to move across the cell membrane*
- 45- *What is cancer?*
a- *When cells grow normally*
b- *Programmed cell growth*
c- *Uncontrolled cell growth, leading to a tumor*



- d- Asexual reproduction of the cell
e- Cells which have lost the ability to reproduce
- 46- Which of the following statements is TRUE about desmosomes?
a- They encircle the entire cell forming an adhesion belt
b- they are associated with intermediate filaments
c- Connexin membrane proteins contribute to their structure
d- They are the type of junction that maintain polarity of the cell
e- They function as diffusion barrier
- 47- In the somatic cell cycle___?
a- In G1 phase DNA is double the amount of DNA present in the original cell
b- A short interphase is followed by a long mitotic phase
c- DNA replication takes place in S-phase
d- G2 phase follows mitotic phase
e- Cytokinesis follows prophase
- 48- Genetic variation includes all the following events EXCEPT?
a- Crossing over I
b- Genetic recombination
c- Duplication of DNA
d- Independent alignment in metaphase 1
e- Fertilization
- 49- Which of the following is CORRECTLY matched?
a- Channel proteins - are part for new protein synthetization
b- Single pass transmembranous proteins- span the lipid bilayer many Times
c- Marker molecules - are primarily steroids
d- Receptor molecules - attach to cholesterol molecules
e- Peripheral proteins - bound either to lipids-membrane or attached noncovalently to proteins that span the membrane
- 50- Concerning apoptosis, the following statement is TRUE ?
a- Occurs on exposure to toxins
b- It is a programmed cell death
c- The surrounding cells also affected
d- A form of necrosis
e- Occurs on exposure to injury or damage
- 51- One of the following is CORRECTLY matched?
a- Euchromatinlightly packed
b- Heterochromatinless densely stained
c- Heterochromatin M..... transcription
d- Heterochromatin rich in gene concentration
e- Euchromatinnon-active form
- 52- Which of the following statements about the nuclear transport is TRUE?



- a- Macromolecules require association with importins proteins to exit the nucleus
 - b- Macromolecules require association with exportins proteins to enter the nucleus
 - c- Macromolecules such as RNA and proteins require association with importins proteins to enter the nucleus and exportin to exit the nucleus
 - d- Macromolecules should be tagged with Nuclear Export Signals to bind to importin
 - e- Macromolecules should be tagged with Nuclear Localization Signals to bind to exportin
- 53- Manufacturing of recombinant DNA molecules involves cutting a gene from its normal location, inserting it into a circular piece of DNA from a bacterial cell. Which of the tools below is used to cut the gene from its normal location?
- a- Plasmid
 - b- Vector
 - c- Scissor
 - d- Restriction enzyme
 - e- Electric kick
- 54- Which series progresses from the smallest to the largest?
- a- DNA, histone; chromosome; nucleosomes
 - b- Histone; chromosome ; DNA ; nucleosomes
 - c- Nucleosome : histone ; DNA, chromosome
 - d- DNA ; histone : nucleosome, chromosome
 - e- DNA, nucleosome; chromosome; histone
- 55- When comparing chromatin and chromosome one of the following is INCORRECT?
- a- Chromatin is thick // chromosome is thin
 - b- Chromatin allows DNA replication / chromosome do not show metabolic activity
 - c- Chromatin appears in interphase // chromosome appears in metaphase
 - d- Chromatin is observed under Electron microscope // chromosome is observed under light microscope
 - e- Chromatin is unpaired // chromosome could be paired
- 56- Where would you most likely find chromatin in the beads on a string conformation?
- a- Euchromatin
 - b- Non actively transcribed chromatin
 - c- Silenced chromatin
 - d- Deacetylated chromatin
 - e- 30 nm fiber chromatin



- 57- The presence of cholesterol in the plasma membranes of some animals?
- a- Enables the membrane to stay fluid more easily when cell temperature drops
 - b- Enables the animal to remove hydrogen atoms from saturated phospholipids.
 - c- Enables the animal to add hydrogen atoms to unsaturated phospholipids
 - d- Makes the membrane less flexible, allowing it to sustain greater pressure from within the cell
 - e- Makes the animal more susceptible to circulatory disorders.
- 58- Which of the following is TRUE about tyrosine kinase receptors?
- a- They are ion channel receptors
 - b- To elicit cellular response G- proteins are activated
 - c- When ligands bind with receptor sites the dimers change into monomers
 - d- They activate multiple cellular responses at once
 - e- The most widely spread type of receptors in eukaryotes
- 59- When cell respond to extracellular signal, they most often convert information from one form to another. This process is called
- a- Signal amplification
 - b- Signal interference
 - c- Signal transduction
 - d- Signal specification
 - e- Signal transformation
- 60- Regarding committed progenitor cells all are true EXCEPT?
- a- Transient amplifying cells I
 - b- Can replicate indefinitely
 - c- Multipotent
 - d- Remain dormant in tissue
 - e- Divide to replace damaged cells
- 61- Which of the following statements about the nuclear pore complex is FALSE?
- a- It is a dynamic structure subjected to increase in number as needed
 - b- It has decagonal symmetry of nucleoporins
 - c- It has a spoke ring of nucleoporins
 - d- It has nuclear basket and cytoplasmic filaments
 - e- It has a nucleoplasmic ring and cytoplasmic ring
- 62- Which of the following is NOT a reason we need mitosis?
- a. Growth
 - b. Recovering from injuries
 - c. Replacement of dead cells
 - d. Development



- e. *Reproducing*
- 63- *Which is a disadvantage of asexual reproduction?*
- It takes longer than sexual*
 - It is more complicated than sexual*
 - It produces no variety in offspring*
 - It cannot produce as many offspring as sexual*
 - It occurs in germ cells*
- 64- *Which types of cells may not undergo mitosis at all?*
- Hair*
 - Skin*
 - Brain*
 - Liver*
 - Bone*
- 65- *Most of medications used today exert their effects by influencing what structures in the cell membrane?*
- Tyrosine kinase receptors*
 - B Ligand- gated ion channel receptors*
 - Growth factors*
 - G-protein coupled receptors*
- 66- *The cell cycle control system gives the cell signals to stop or go ahead through specific*
- Phases A*
 - Checkpoints*
 - Internal factors*
 - External factors*
 - Stages*

1	B	13	b	25	E	37	A	49	E	61	B
2	C	14	D	26	B	38	B	50	B	62	e
3	c	15	D	27	E	39	D	51	A	63	C
4	a	16	D	28	C	40	A	52	C	64	C
5	d	17	C	29	A	41	E	53	D		
6	c	18	A	30	E	42	A	54	D		
7	D	19	D	31	D	43	A	55	A		
8	a	20	C	32	A	44	B	56	A		
9		21	A	33	A	45	C	57	A		
10	d	22	C	34	B	46	b	58	d		
11	b	23	C	35	A	47	C	59	C		
12	b	24	B	36	c	48	C	60	B		



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