

Cell biology
Final
archive



Which of the following contain the nine triple arrangement of microtubules?

Select one:

a. Cilia

b. Centrioles

c. Microvilli

d. Nuclear Lamina

e. Nuclear Pore Complex

The phase of mitosis in which the sister chromatids separate from each other is?

Select one:

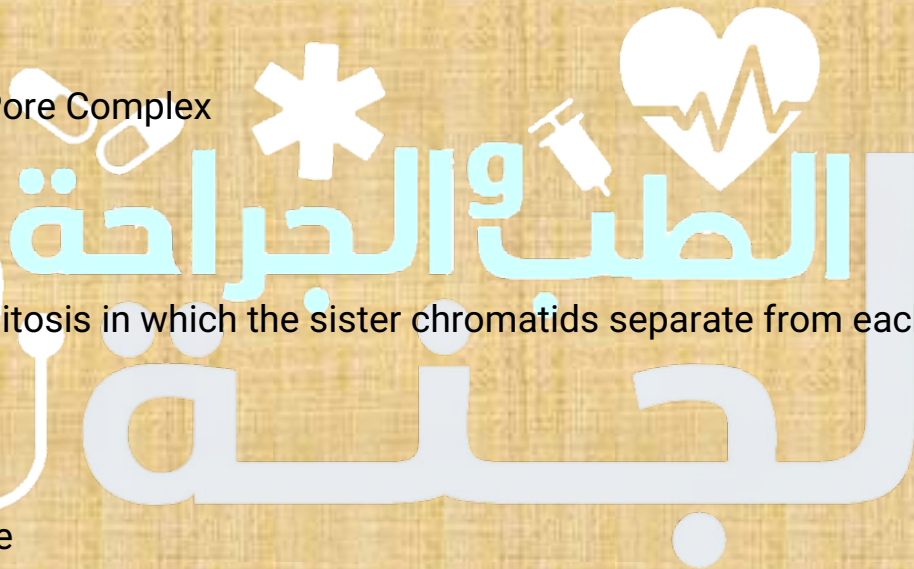
a. Prophase

b. Metaphase

c. Anaphase

d. Telophase

e. Cytokinesis



Exchange of the genetic fragments between the homologous chromosomes lead to ___?

Select one:

0 a. Fertilization

0 b. Production of two identical cells

0 c. Genetic recombination

0 d. Increase the incidence of genetic diseases

0 e. Rapid repair of the cells

All of the followings are true about the paraffine technique EXCEPT?

Select one:

a. Fixation /// osmium tetroxide

b. Dehydration //// alcohol

c. . Impregnation //// soft wax

d. Staining //// trichrome

Most of medications used today exert their effects by influencing what structures in the cell membrane?

Select one:

a. Tyrosine kinase receptors

b. Ligand-gated ion channel receptors

c. Growth factors

d. G-protein coupled receptors

e. Cholesterol

The synthesis (S) phase is characterized by

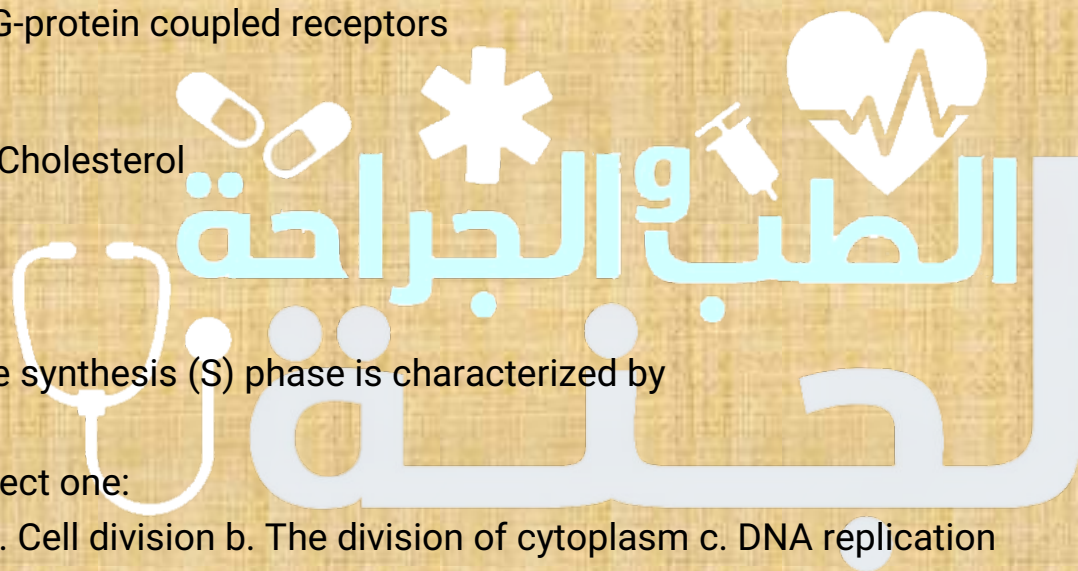
Select one:

a. Cell division b. The division of cytoplasm c. DNA replication

d. Replication of mitochondria and other organelles e. Nuclear division

Which of the following is NOT a source for stem cells?

Select one:



a. Umbilical cord blood

b. Periosteum of bone

c. Early embryo

d. Sperms and eggs

e. Bone marrow

Which of the following statements about the nuclear envelope is TRUE?

Select one:

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

Which of the following regarding modes of cell signaling is INCORRECTLY

matched?

Select one:

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

A chromosome is the thickest during

Select one:

a. Anaphase

b. Prophase

c. Interphase

d. Metaphase

e. Telophase

What kinds of molecules pass through a cell membrane most easily?



Select one:

a. Large and hydrophobic

b. Small and hydrophobic

c. Large polar

d. Ionic

e. Monosaccharides such as glucose

The chromatids are pulled apart, to opposite ends of the cell

Select one:

a. Metaphse

b. Anaphase

c. Prophase

d. Telophase

e. Cytokinesis

A fertilized egg that can develop into all the types of cells in the body is considered to be

_?

Select one:

a. Multipotent

b. Totipotent

c. Unipotent

d. Pluripotent

e. Oligopotent

Which of the following hormones pass through the plasma membrane of the cell and have receptor molecules in the cytoplasm?

Select one:

a. Insulin

b. Glucagon

c. Epinephrine

d. Testosterone

e. Histamine

Gene therapy, is a technique used to cure inherited diseases by ?

Select one:

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

Which of the following signal molecules is NOT used for extracellular signaling?

Select one:

a. Paracrine

b. Synaptic

c. Endocrine

d. Cyclic AMP

e. Autocrine

The mode of signaling between neurons of the nervous system is called

?

Select one:

a. Juxtacrine signaling

b. Paracrine signaling

c. Synaptic signaling

d. Hormonal signaling

e. Autocrine signaling

Which of the following set of features describes stem cells CORRECTLY?

Select one:

a. Selfrenewal
///differentiation

b. Meiosis /// mitosis

c. Specialized /// undifferentiated

d. Meiosis ///binary fission

e. Proliferation ///cytokinesis

All of the following form the structure of the nuclear envelop EXCEPT?

Select one:

a. External (outer) nuclear membrane

b. Nuclear pores

c. Internal (inner) nuclear membrane I

d. Chromatin

e. Lamina densa (nuclear lamina)

Which of the following produces identical nuclei in cells?

Select one:

- a. Pollination
- b. Osmosis
- c. Mitosis
- d. Fertilization
- e. Cytokinesis

The cell cycle control system gives the cell signals to stop or go ahead through specific

Select one:

- a. Phases
- b. Checkpoints
- c. Internal factors
- d. External factors
- e. Stages



IPS cells are derived from

?

Select one:

Oa. Embryonic stem cells

O b. Morula

O c. Adult somatic cells

o d. IVF embryos

o e. Germ cells

One of the following is INCORRECT about chromatin beads on a string?

Select one:

o a. Nucleosomes is composed of two copies of histone molecules

o b. H1 histone is the linker histone

o c. It is composed of repeating subunits called nucleobase

o d. DNA wrapped almost twice around eight histone molecules

o e. It appears in the interphase of the cell

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?

Select one:

a. Rough ER

b. Smooth ER

c. Golgi apparatus

d. Nuclear envelope

e. Centromere

The technique used to locate specific genes in chromosomes is called ?

Select one:

a. Electrophoresis

b. Chromatography

c. Immunohistochemistry

d. Cell fractionation

e. Fluorescent in situ hybridization

An animal cell lacking oligosaccharides on the external surface of its plasma membrane would likely be impaired in which function?

Select one:

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

Which of the following CORRECTLY matches an organelle with its function?

Select one:

a. Mitochondrion..... manufacture of proteins

b. Nucleus.....cellular respiration

c. Ribosomemanufacture of lipids

d. Lysosome.....movement

e. Central vacuole.....storage

Cells in G0 phase of cell cycle ?

Select one:

- a. Exit cell cycle
- b. Enter cell cycle
- c. Suspend cell cycle
- d. Terminate cell cycle
- e. Programmed cell growth

The sequence of growth and division of a cell

?

Select one:

a. Cell cycle

b. Mitosis

c. Anaphase

d. Cancer

e. Telophase

Which of the following is NOT correct about mitosis:



Select one:

- 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

When comparing chromatin and chromosome one of the following is INCORRECT?

Select one:

- 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 I
- d. Chromatin is observed under Electron microscope // chromosome is observed under light microscope
- e. Chromatin is unpaired // chromosome could be paired

One of the followings events is NOT occurred during mitosis?

Select one:

a Two identically daughter cells are formed

b. Mitotic spindle is formed

c. Preceded by interphase

d. Formation of tetrad

e. Karyokinesis and cytokinesis

Cells spend the majority of their life in?

Select one:

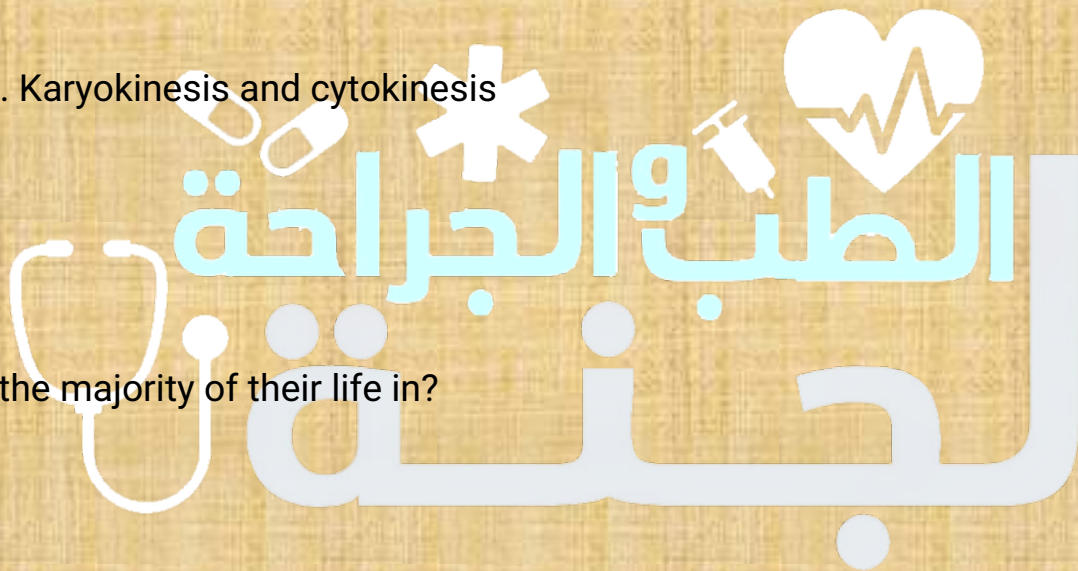
a. interphase

b. Mitosis

c. S-Stage

d. G2 phase

e. G1 phase



The resolution power of naked eye equals_?

Select one:

a. 0.2 millimeter

b. 0.2 nanometer (nm)

c. 0.2 micrometer

d. 0.5 micrometer

e. 10 angstroms

The technique used to locate specific genes in chromosomes is called_?

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- d. Attaching to the cytoskeleton
- e. Establishing the diffusion barrier to charged molecules

Study of tissues after doing experiments outside the body is called

?

Select one:

- a. Cell fractionation
- b. In vitro studies
- c. In vivo studies
- d. Tissue culture
- e. Histochemistry

Stem cells that allow renewal of specific cell types are called__
_?

Select one:

a Oligopotent

b. Unipotent

c. Multipotent

d. Totipotent

e. Pluripotent

Regarding potency, monocytes are considered as

Select one:

a. Multipotent cells

b. Totipotent cells

c. Unipotent cells

d. Pluripotent cells

e. Oligopotent cells



Human somatic cells contain chromosomes, while gamete cells contain _chromosomes?

Select one:

a. 46; 23

b. 23:23

c. 46:46

d. 23:46

e. 46; 22

Organelles other than the nucleus that contain DNA include?

Select one :

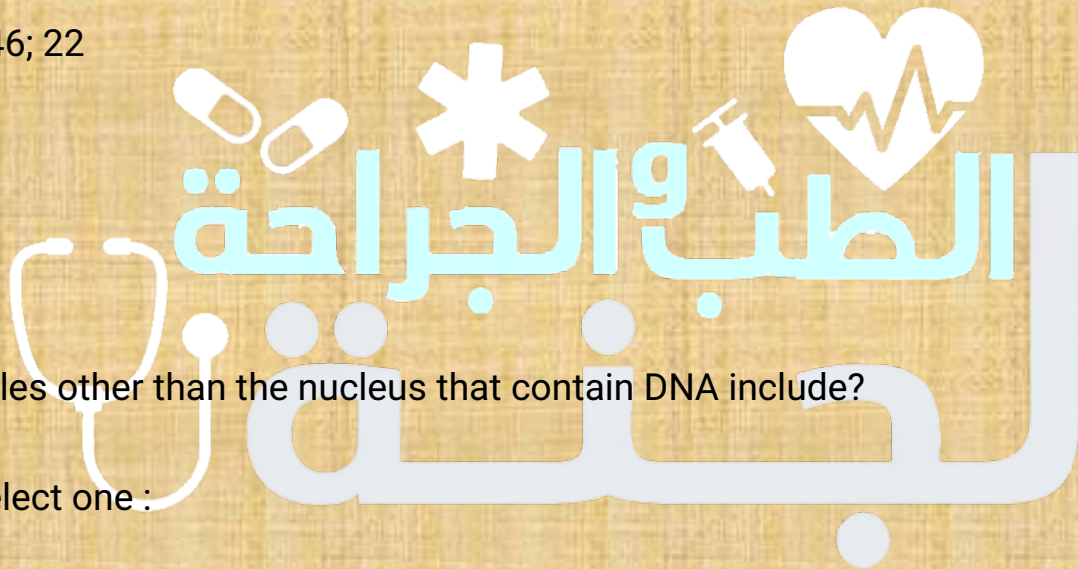
a Ribosomes.

b. Mitochondria.

c. Cytoskeleton

d. Rough ER

e. Smooth ER



Which of the following is TRUE about G protein-coupled receptors?

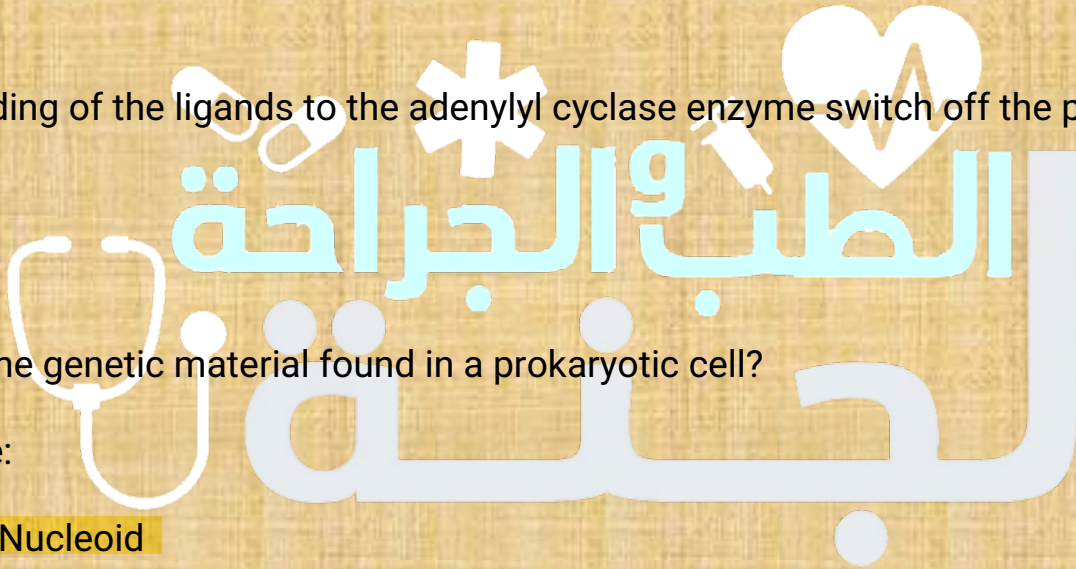
Select one:

- 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

Where is the genetic material found in a prokaryotic cell?

Select one:

- a. Nucleoid
- b. Nucleotide
- c. Nucleus
- d. Nucleolus
- e. Nucleosome



The cell membrane pinches in, dividing the cytoplasm into 2 cells?

Select one:

a. Metaphase

b. Anaphase

c. Prophase

d. Telophase

e. Cytokinesis

During this stage in interphase, the cell grows, carries out normal functions, and copy their organelles ?

Select one:

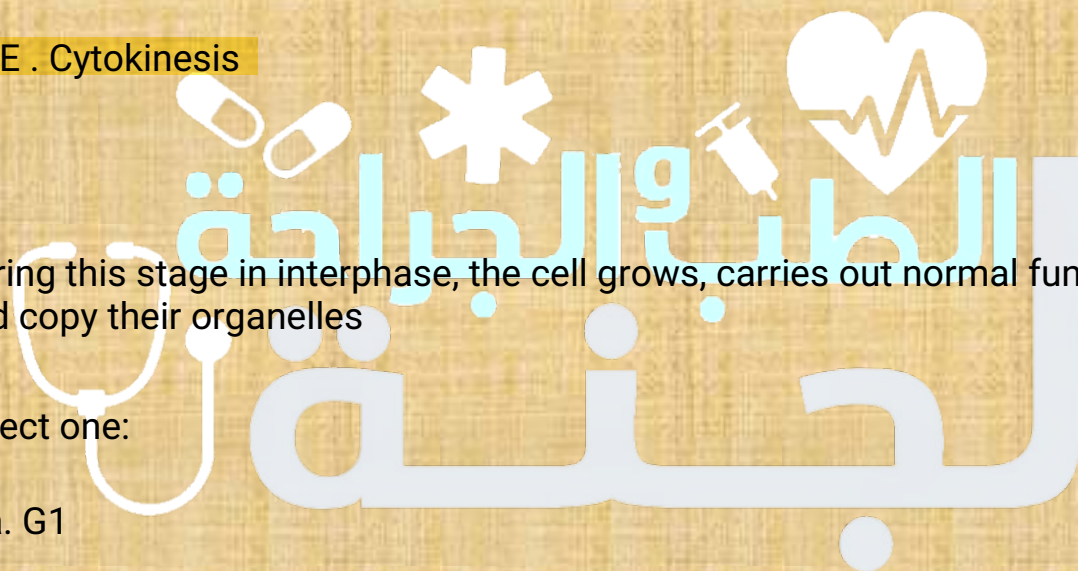
a. G1

b. Synthesis

c. G2

d. Mitosis

e. Cytokinesis



Many of the extracellular signal molecules that regulate inflammation are released locally at the site of infection. What form of cell-to-cell signaling is used?

Select one:

a. Paracrine

b. Juxtacrine

c. Endocrine

d. Apocrine

e. Synaptic

During this stage in interphase, the cell grows, carries out normal functions, and copies its organelles. Which stage is this?

Select one:

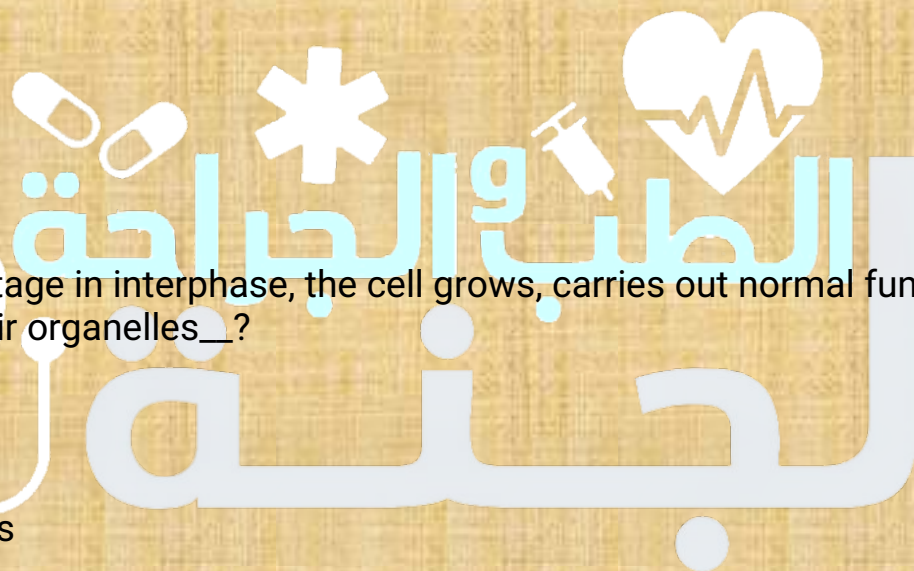
a. G1

b. Synthesis

c. G2

d. Mitosis I

e. Cytokinesis



Many of the extracellular signal molecules that regulate inflammation are released locally at the site of infection. What form of cell-to-cell signaling is being used?

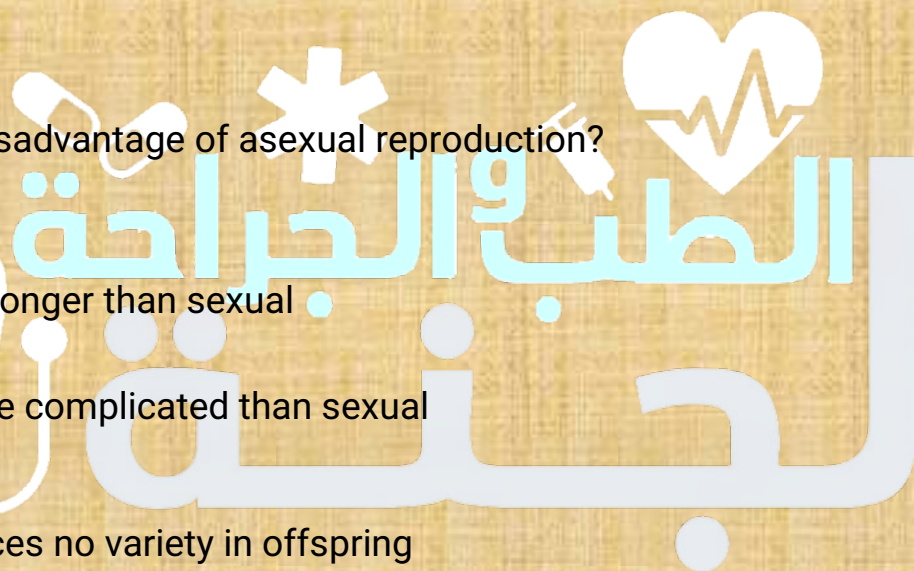
Select one:

- a Paracrine
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- e. Synaptic

Which is a disadvantage of asexual reproduction?

Select one:

- a. It takes longer than sexual
- b. It is more complicated than sexual
- c. It produces no variety in offspring
- d. It cannot produce as many offspring as sexual
- e. It occur in germ cells



* Proteins are a critical part of any cell membrane. Which of the followings is NOT a role of these membrane proteins?

Select one:

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

What is cancer?

Select one:

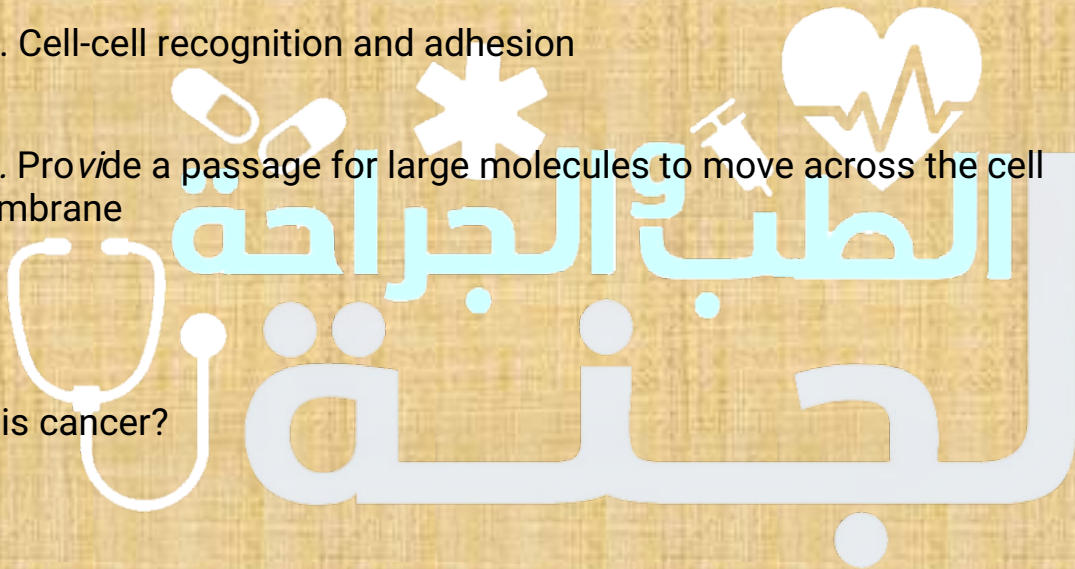
a When cells grow normally

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



Which of the following statements is TRUE about desmosomes?

Select one:

- 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

In the somatic cell cycle__?

Select one:

- 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

Regarding committed progenitor cells all are true EXCEPT?

Select one:

a. Transient amplifying cells

b. Can replicate indefinitely

c. Multipotent

d. Remain dormant in tissue

e. Divide to replace damaged cells

Genetic variation include all of the following events EXCEPT?

Select one:

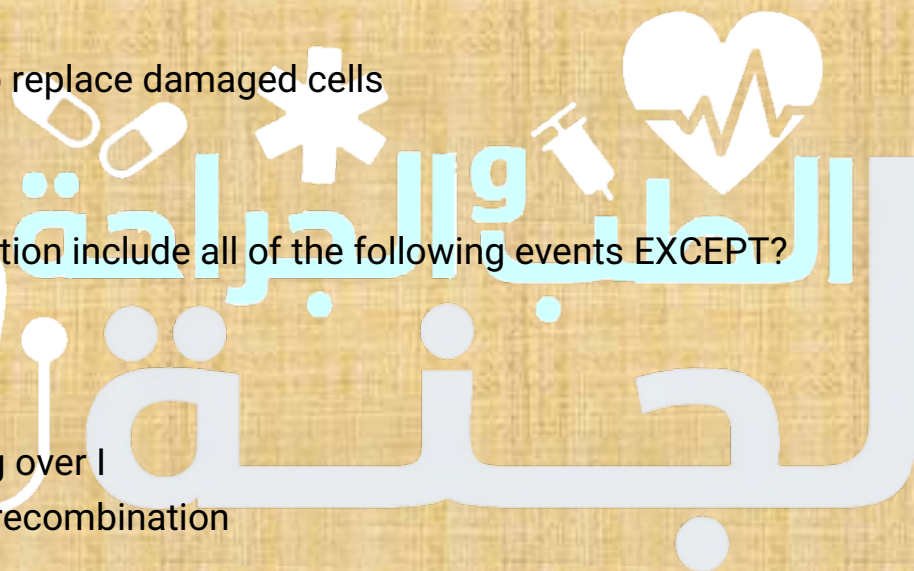
a. Crossing over

b. Genetic recombination

c. Duplication of DNA

d. Independent alignment in metaphase 1

e. Fertilization



* Which of the following is CORRECTLY matched?

Select one:

- 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

Which of the following is TRUE about tyrosine kinase receptors?

Select one:

- 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

Concerning apoptosis, the following statement is TRUE ?

Select one:

- 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

One of the following is CORRECTLY matched?

Select one:

- a. Euchromatinlightly packed
- b. Heterochromatinless densely stained
- c. Heterochromatin M..... trans transcription
- d. Heterochromatinrich in gene concentration

e. Euchromatinnon-active form

Which of the following statements about the nuclear transport is TRUE ?

Select one:

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

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

The spindle fibers of mitotic division are produced by the? Select one:

a. Chromosomes

b. Nucleus

c. Chromatin

d. Centrioles

e. Nucleolus

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?

Select one:

- a. Plasmid
- b. Vector
- c. Scissor
- d. Restriction enzyme
- e. Electric kick

Which series progresses from the smallest to the largest?

Select one:

- 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

Which of the following statements about the nuclear pore complex is FALSE?

Select one:

- a. It is a dynamic structure subjected to increase in number as needed
- b. It has decagonal symmetry of nucleoporins DO NO
- 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

Stem cells that allow renewal of specific cell types are called

Select one:

- a. Oligopotent
- b. Unipotent
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When comparing chromatin and chromosome one of the following is INCORRECT?

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iPS cells are derived from

Select one:

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b. Morula

c. Adult somatic cells

d. IVF embryos

e. Germ cells

Where would you most likely find chromatin in the beads on a string conformation?

Select one:

a. Euchromatin

b. Non actively transcribed chromatin

c. Silenced chromatin

d. Deacetylated chromatin

e. 30 nm fiber chromatin

The technique used to locate specific genes in chromosomes is called

Select one:

- a. Electrophoresis
- b. Chromatography
- c. Immunohistochemistry
- d. Cell fractionation
- e. Fluorescent in situ hybridization

The presence of cholesterol in the plasma membranes of some animals?

Select one

- 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.

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The mode of signaling between neurons of the nervous system is called

Select one:

- a. Juxtacrine signaling
- b. Paracrine signaling
- c. Synaptic signaling
- d. Hormonal signaling

e. Autocrine signaling

When cells respond to extracellular signals, they most often convert information from one form to another. This process is called

Select one

a. Signal amplification

b. Signal interference

c. Signal transduction

d. Signal specification

e. Signal transformation

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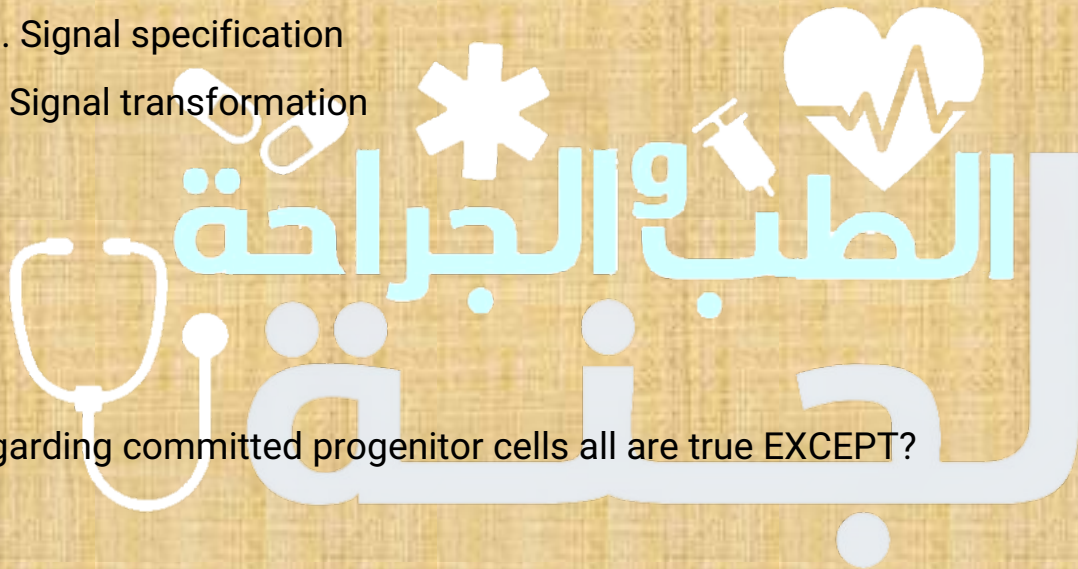
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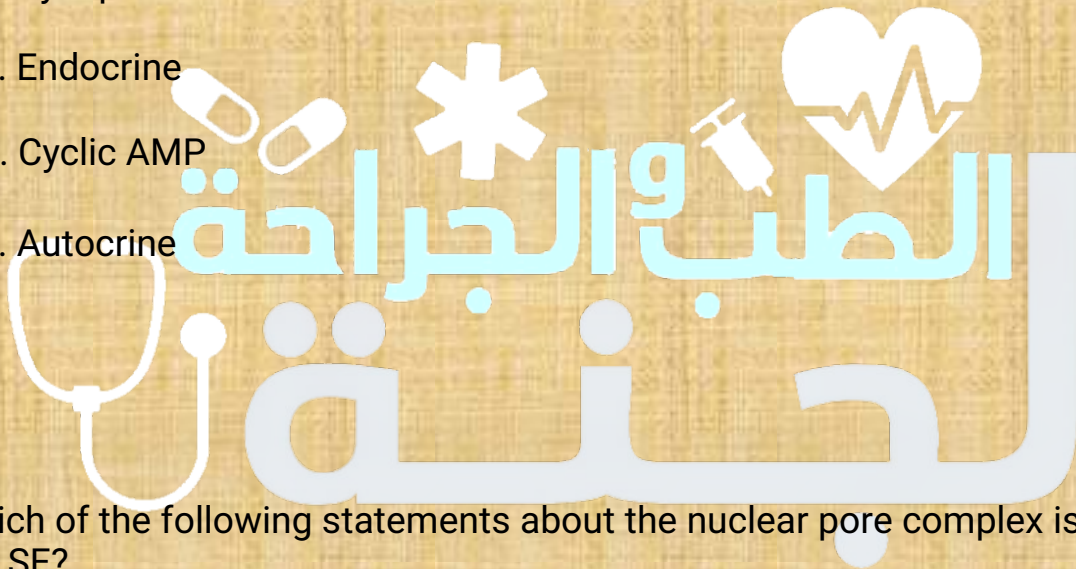
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c Connexin membrane proteins contribute to their structure

d. They are the type of junction that maintain polarity of the cell

e. They function as diffusion barrier

Which of the following is NOT a reason we need mitosis?

Select one:

a. Growth

b. Recovering from injuries

c. Replacement of dead cells

d. Development
 e. Reproducing



Which is a disadvantage of asexual reproduction?

Select one:

a. It takes longer than sexual

- b. It is more complicated than sexual
- c. It produces no variety in offspring
- d. It cannot produce as many offspring as sexual
- e. It occur in germ cells

Which types of cells may not undergo mitosis at all?

Select one:

- a. Hair
- b. Skin
- c. Bhain
- d. Liver
- e. Bone



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Select one:

- a. Tyrosine kinase receptors
- B Ligand- gated ion channel receptors
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b. Checkpoints

c. Internal factors

d. External factors

e. stages



إعداد لجنة الطب و الجراحة

() عمر سعدي

