

Program: BE Biotechnology Engineering

Curriculum Scheme: Revised 2016

Examination: B.E. (Biotechnology) (REV-2016) (Choice Based) Semester VII

Course Code: BTE7031 and Course Name: Department Level Optional Course III: Stem Cell & Tissue Engineering

Time: 1 hour

Max. Marks: 50

=====

Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	Which is correct order of steps in development?
Option A:	Fertilization-> zygote-> morula->blastula->nerula ->organogenesis->morphogenesis
Option B:	Fertilization-> zygote-> organogenesis-> morula->blastula->nerula ->morphogenesis
Option C:	Fertilization ->organogenesis->morphogenesis-> zygote-> morula->blastula->nerula
Option D:	Fertilization-> morphogenesis-> zygote-> morula->blastula->nerula ->organogenesis
Q2.	Adult stem cells are found only in bone marrow
Option A:	Correct
Option B:	Incorrect
Option C:	Cannot be answered
Option D:	Neither correct nor incorrect
Q3.	Which layer of epidermis undergo cell division?
Option A:	Basal layer
Option B:	Granular layer
Option C:	Prickle layer
Option D:	Keratinized layer
Q4.	Choose the incorrect statement.
Option A:	There is a waterproof barrier that is thought to be created by a sealant material that the granular cells secrete
Option B:	Keratin intermediate filament proteins of keratinocytes give the epidermis its toughness
Option C:	Prickle cells possess numerous desmosomes
Option D:	Granular cell layer is the innermost layer of epidermis
Q5.	The blood cell formation is known as
Option A:	Hematopoiesis
Option B:	Osteogenesis
Option C:	Chemokines

Option D:	Megakaryocytes
Q6.	Mesenchymal stem cells are found in
Option A:	Bone marrow
Option B:	Skin
Option C:	Kidney
Option D:	Liver
Q7.	The bone matrix is secreted by
Option A:	Osteoblasts
Option B:	Fibroblast
Option C:	Osteoclast
Option D:	Myoblast
Q8.	Freshly forms uncalcified bone matrix is called
Option A:	Osteocyte
Option B:	Osteoid
Option C:	Lacuna
Option D:	Canaliculi
Q9.	_____ have a beneficial role ion regenerating liver tissue and reversing scarring in the liver
Option A:	Bone marrow cells
Option B:	Synovial membranes
Option C:	Connective tissue
Option D:	Epithelial cells
Q10.	Use of _____ is ethically controversial for research purposes.
Option A:	Connective tissue
Option B:	Fetal tissue
Option C:	Epithelial tissue
Option D:	Nervous tissue
Q11.	Preliminary studies have been carried out using immature stem cell-like precursors from the rodent _____ midbrain, the region that normally gives rise to the dopamine neurons
Option A:	ventral
Option B:	Dorsal
Option C:	Lateral
Option D:	frontal
Q12.	In particular, hematopoietic stem cells are an ideal choice because they can easily be removed from the _____
Option A:	Frontal lobe of brain
Option B:	Bone marrow or umbilical cord

Option C:	Stomach epithelial cells
Option D:	Cardiomyocytes
Q13.	Along with hydroxyapatite, _____ is one of the major components of bone
Option A:	Sulphur
Option B:	Collagen
Option C:	Oxygen
Option D:	Nitrogen
Q14.	In a Raman spectrum, the Raman _____ is plotted versus the Raman shift
Option A:	Intensity
Option B:	Wavelength
Option C:	Wavenumber
Option D:	Concentration
Q15.	The absorption happens due to the electronic transitions from the ground state to the excited state and its magnitude depends on the Beer Lambert law which is _____. In which A is the absorbance, a is the wavelength-dependent absorption coefficient, b is the path length through the solution in an analytical cell, and c is the molar concentration of the absorbing analyte
Option A:	$A=a/bc$
Option B:	$A=abc$
Option C:	$A=a/(2bc)$
Option D:	$A=2abc$
Q16.	In X-Ray diffraction method a _____ X-ray beam is radiated towards the material and the intensity of the diffracted beam is measured as a function of the angle of incident.
Option A:	Polychromatic
Option B:	Monochromatic
Option C:	Dichromatic
Option D:	Trichromatic
Q17.	The adult human skeleton is composed of 80% _____ (also known as compact bone)
Option A:	Cortical bone
Option B:	Temporal bone
Option C:	Trabecular bone
Option D:	Pelvic bone
Q18.	_____ is the most important criteria when designing or determining the suitability of a scaffold for use in tissue engineering
Option A:	Cost effective

Option B:	Strength
Option C:	Durability
Option D:	Biocompatibility
Q19.	Intramembranous bone formation involves mesenchymal progenitor cells differentiating directly into _____
Option A:	Chondrocytes
Option B:	Cardiomyocytes
Option C:	Osteoblasts
Option D:	Leucocytes
Q20.	The optimal cell source to create for a myocardial construct must differentiate into _____
Option A:	Chondrocytes
Option B:	Osteocytes
Option C:	Cardiomyocytes
Option D:	Leucocytes
Q21.	The aim of tissue engineering of the myocardium is to regenerate damaged cardiac tissue using tissue-engineered constructs, which mimic native _____
Option A:	Intracellular matrix (ICM)
Option B:	Extracellular matrix (ECM)
Option C:	Cytoplasm
Option D:	Cellular matrix (CM)
Q22.	_____ are hydrophilic polymers that can be formed using natural materials, synthetic materials, or some combination of the two.
Option A:	Hydroxyapatite
Option B:	Calcium gel
Option C:	Silica gel
Option D:	Hydrogels
Q23.	Which is not the property of stem cell?
Option A:	Self-renewal
Option B:	Pluripotent
Option C:	Repair
Option D:	DNA damage
Q24.	Osteogenic cells are bone cells that originate from _____
Option A:	Osteoblasts
Option B:	Mesenchymal stem cells
Option C:	Osteoclasts

Option D:	Osteocytes
Q25.	The grafting of the dorsal lip of the blastopore from an early <i>Xenopus</i> gastrula onto the ventral side of an early embryo will result in
Option A:	The formation of two separate and independent embryos
Option B:	The formation of two complete embryos joined along the ventral axis
Option C:	The formation of two sets of anterior structures joined along the ventral axis: a two-headed embryo
Option D:	No effect: only dorsal lips from early embryos have organizer activity

Program: BE Biotechnology Engineering

Curriculum Scheme: Revised 2016

Examination: B.E. (Biotechnology) (REV-2016) (Choice Based) Semester VII

Course Code: BTE7031 and Course Name: Department Level Optional Course III: Stem Cell & Tissue Engineering

Time: 1 hour

Max. Marks: 50

=====

<b>Question</b>	<b>Correct Option (Enter either 'A' or 'B' or 'C' or 'D')</b>
Q1.	A
Q2.	B
Q3.	A
Q4	D
Q5	A
Q6	A
Q7	A
Q8.	B
Q9.	A
Q10.	B
Q11.	A
Q12.	B
Q13.	B
Q14.	A
Q15.	B
Q16.	B
Q17.	A

Q18.	D
Q19.	C
Q20.	C
Q21.	B
Q22.	D
Q23.	D
Q24.	B
Q25.	C