



# ARKA JAIN University, Jharkhand

1<sup>st</sup>Semester End Semester Examination – 2019-20

Subject: Cell Biology  
Full Marks: 60  
Time: 3Hours

Course: Biotechnology  
Pass Marks: 24

- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into **Three Parts –A,B& C**
- **Part-A** is compulsory.
- **Part- B** contains **FIVE** questions out of which **FOUR** questions are to be answered.
- **Part- C** contains **THREE** questions out of which **TWO** questions are to be answered.

## PART A

Q.1) All questions are compulsory

A] Multiple Choice Questions

(10x1=10)

a) Who discovered cell?

- Robert Hook
- Robert Crook
- David Thomson
- Marie Francois

b) An Organelle which serves as a primary packaging area for molecules that will be distributed throughout the cell is called?

- Mitochondria
- Plastids
- Golgi apparatus
- Vacuole

c) The outer most boundary of the cell is called?

- Plasma membrane
- Cytoplasm
- Nuclear membrane
- None of the above

d) The process in which the ingestion of material by the cells is done through the plasma membrane is called?

- Egestion
- Diffusion
- Osmosis
- Endocytosis

e) Plasmodesmata are located in narrow areas of

- Cell walls
- Protoplasm
- Cellulose
- Nuclei

f) Programmed cell death is called as

- apoptosis
- cell lysis

- iii) necrosis
  - iv) cell ageing
- g) TCA cycle take place in
- i) Cytoplasm
  - ii) Mitochondria matrix
  - iii) Nucleoplasm
  - iv) Endoplasmic reticulum
- h) The process in which the membrane of a vesicle can fuse with the plasma membrane and extrude its contents to the surrounding medium?
- i) Exocytosis
  - ii) Endocytosis
  - iii) Osmosis
  - iv) Diffusion
- i) The jelly like substance present inside the cell is known as:
- i) Cytoplasm
  - ii) Ectoplasm
  - iii) Nucleoplasm
  - iv) None of the above
- j) Microfilament is made up of
- i) tubulin
  - ii) actin
  - iii) both of above
  - iv) None of the

(5x2=10)

**B] Very Short question**

- a) Phagocytosis
- b) Active transport
- c) Deplasmolysis
- d) Uniport, antiport, symport
- e) Types of Ribosome

**PART B**

(4x5=20)

**Q.2) Answer any Four:**

- i) Write the function of
  - a) Chloroplasts
  - a) Glyoxysomes
- ii) Write differences between Prokaryotic cell and Eukaryotic cell.
- iii) Explain the Fluid Mosaic model of plasma membrane with labeled diagram.
- iv) What are micro bodies? State its structures?
- v) What is electron transport chain? State its types of compound involves in ETS?

**PART C**

(2x10=20)

**Answer any two:**

- Q.3) what is cytoskeleton? Compare between microtubules, intermediate filaments and microfilaments?
- Q.4) What is plasma membrane? State the mode of transport across plasma membrane?
- Q.5) What is cancer? Write the different properties of cancerous cell.
- Q.6) what is signal Transduction? Explain MAPs Kinase Cascade



**Subject: Biochemistry & Metabolism**

**Full Marks: 60**

**Time: 3Hours**

**Course: Biotechnology**

**Pass Marks: 24**

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**PART A**

**Q.1) All questions are compulsory**

**A) Multiple Choice Questions:**

**(10x1=10)**

- 1) An essential amino acid is one that
  - i. is essentially easy to synthesize
  - ii. is essential to flagella motion
  - iii. the body cannot synthesize
  - iv. the body can synthesize at optimum condition
- 2) Which of the following is not found on RNA?
  - i. Adenine
  - ii. Thymidine
  - iii. Guanine
  - iv. Cytosine
- 3) Humans are unable to digest
  - i. Starch
  - ii. complex carbohydrates
  - iii. cellulose
  - iv. denatured protein
- 4) Molecules that bear charged groups of opposite polarity are known as?
  - i) Zwitterions
  - ii) Ambions
  - iii) Ion conversion
  - iv) Amphions
- 5) Protein component of enzyme is called
  - i) Cofactor
  - ii) Coenzyme
  - iii) Activator
  - iv) Apoenzyme
- 6) Which of the following indicates that the pK of an acid is numerically equal to the pH of the solution when the molar concentration of the acid and its conjugate base are equal?
  - i) Michaelis-Menten equation
  - ii) Haldanes equation
  - iii) Henderson-Hasselbalch equation

- iv) iv)Hardy-Windberg law
- 7) Beta pleated sheets are examples of protein
- i) primary structure
  - ii) secondary structure
  - iii) tertiary structure
  - iv) quaternary structure
- 8) Hydrogen bond is strong but weaker than covalent and ionic bond
- i. True
  - ii. false
- 9) Hetero polysaccharide which is lubricant and shock absorber
- i. Heparin
  - ii. Hyaluronic acid
  - iii. Pectin
  - iv. Keratin sulphate
- 10) The backbone of nucleic acid structure is constructed by
- i) Peptide bonds
  - ii) glycosidic bonds
  - iii) Phosphodiester bonds
  - iv) All of them

**B] Very Short question**

(5x2=10)

- a) Essential fatty acids
- b) Protein denaturation
- c) Chargaff principle
- d) Buffer
- e) Peptide Bond

**PART B**

(4x5=20)

**Answer any Four:**

- Q.2) What are heteropolysaccharide and homopolysaccharide, give example of each.
- Q.3) Discuss intermolecular and intramolecular forces between molecules
- Q.4) Bonds responsible for Protein structure
- Q.5) What are phospholipids and their functions
- Q.6) Write note on Non Competitive inhibition

**PART C**

(2x10=20)

**Answer any two:**

- Q.7) Discuss features of different conformations of DNA
- Q.8) What is protein? Explain secondary structure of protein
- Q.9) Name various pathways for glucose metabolism. Give in detail the glycolysis and mention its regulatory points.
- Q.10) Discuss different properties of water for the sustainability of living organisms.



# ARKA JAIN University, Jharkhand

1st Semester End Semester Examination – 2019-20

Subject: Entrepreneurship  
Full Marks: 35  
Time: 2Hours

Course: Biotechnology  
Pass Marks: 14

- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into **Three Parts –A,B& C**
- **Part-A** is compulsory.
- **Part- B** contains **FOUR** questions out of which **TWO** questions are to be answered.
- **Part- C** contains **THREE** questions out of which **ONE** questions are to be answered.

## PART A

**Q.1) All questions are compulsory**

**A] Multiple Choice Questions:**

**(5x1=5)**

**Q.1) Multiple Choice Questions**

i) For successful business plans the goals should be

- a) Limitless
- b) generalize
- c) specific
- d) imaginary

ii) Information regarding all of the following is related to operations, EXCEPT:

- a) Location
- b) Promotion
- c) Raw materials
- d) Labor skills

iii) EDP (Entrepreneurship Development Programmes) is required to help:

- (a) Existing entrepreneurs
- (b) First generation entrepreneurs
- (c) Future generations entrepreneurs
- (d) None of the above

iv) Which of the following shows the process of creating something new?

- a) Business model
- b) Modeling
- c) Creative flexibility
- d) Innovation
- v) NSIC stands for
  - a. National small industry Co-operation
  - b. National state industry co-operation
  - c. National state institute co-operation
  - d. National small institute co-operation
  - e.

**B] Very Short question**

(5x2=10)

- a) Firm
- b) Partnership
- c) Co-operative society
- d) Industry
- e) Entrepreneur

**PART B**

**Q.2) Answer any Two:**

(2x5=10)

- i) Differentiate between Entrepreneur and entrepreneur.
- ii) What is sole proprietorship? Explain its features.
- iii) What are characteristics of an entrepreneur?
- iv) What is EDP? What are its objectives?

**PART C**

**Answer any one:**

(1x10=10)

**Q3) Explain functions of DIC in entrepreneurship development program**

**Q4) What is Joint stock company? Explain features, merits and demerits of joint stock company.**

**Q5) Explain causes of sickness in small scale industry**



# ARKA JAIN University, Jharkhand

1st Semester Final Examination – 2018-19

3-c

Subject: ENGLISH

Course: BA OPT & BIOTECH

Time: 2 Hours

Full Marks: 35

Pass Marks:14

- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into **Three Parts –A, B & C**
- **Part-A** is compulsory.
- **Part- B** contains **four** questions out of which **two** questions are to be answered.
- **Part- C** contains **three** questions out of which **one** question is to be answered.

## PART A

Q1.) All questions are compulsory:-

A] Multiple choice

(5x1=05)

- Every ball, bat, glove \_\_\_\_\_ an extra 25 cents at Frank's.
  - costs
  - cost
  - costed
  - had cost
- Coach Mike nor his players \_\_\_\_\_ enough skill to win the championship.
  - has
  - have
  - having
  - has been
- Each of the happy kids \_\_\_\_\_ across the playground at recess.
  - hops
  - is hopping
  - hop
  - had hopped
- On the playground \_\_\_\_\_ many little crying children who want their mommies.
  - was
  - is
  - were
  - are
- He \_\_\_\_\_ the best hot dogs in all the land.
  - made
  - is making
  - makes
  - make

B] Short Answer Type

(5x2=10)

- What is the theme of the poem Of Studies?
- What has the poet expressed in the poem Can Life be a Blessing?
- In the poem, Ode to Duty what duty is been discussed?
- Shaw's Arms and the Man project after effect of war or just comedy?

- e. Discuss in brief the theme of the poem The Portrait of a Lady.

### **PART B**

**Q2.) Answer any two:**

**(2x5=10)**

- a. The play, Arms and the Man does not only depict the Bulgarian society of that time but reflects the norms of today's society as well. Discuss with reference to the play.
- b. The fundamental message of the story is that people have the ability to do good as well as bad to others. State the theme of the story Kabuliwala.
- c. What does Khushwant Singh describe in The Portrait of a Lady?
- d. Much like the newborn calf that is unsteady the author has successfully embedded their emotion into words. Elaborate your thoughts with reference to the poem A Grey Haze over the Rice Fields.

### **PART C**

**Read the given passage and answer the questions**

**(1x5=5)**

Conflict had existed between Spain and England since the 1570s. England wanted a share of the wealth that Spain had been taking from the lands it had claimed in the Americas.

Elizabeth I, Queen of England, encouraged her staunch admiral of the navy, Sir Francis Drake, to raid Spanish ships and towns. Though these raids were on a small scale, Drake achieved dramatic success adding gold and silver to England's treasury and diminishing Spain's supremacy.

Religious differences also caused conflict between the two countries. Whereas Spain was Roman Catholic, most of England had become Protestant. King Philip II of Spain wanted to claim the throne and make England a Catholic country again. To satisfy his ambition and also to retaliate against England's theft of his gold and silver, King Philip began to build his fleet of warships, the Spanish Armada, in January 1586.

Philip intended his fleet to be indestructible. In addition to building new warships, he marshaled 130 sailing vessels of all types and recruited more than 19,000 robust soldiers and 8,000 sailors. Although some of his ships lacked guns and others lacked ammunition, Philip was convinced that his Armada could withstand any battle with England.

The martial Armada set sail from Lisbon, Portugal, on May 9, 1588, but bad weather forced it back to port. The voyage resumed on July 22 after the weather became more stable.

The Spanish fleet met the smaller, faster, and more maneuverable English ships in battle off the coast of Plymouth, England, first on July 31 and again on August 2. The two battles left Spain vulnerable, having lost several ships and with its ammunition depleted. On August 7, while the Armada lay at anchor on the French side of the Strait of Dover, England sent eight burning ships into the midst of the Spanish fleet to set it on fire. Blocked on one side, the Spanish ships could only drift away, their crews in panic and disorder. Before the Armada could regroup, the English attacked again on August 8.

Although the Spaniards made a valiant effort to fight back, the fleet suffered extensive damage. During the eight hours of battle, the Armada drifted perilously close to the rocky coastline. At the moment when it seemed that the Spanish ships would be driven onto the English shore, the wind shifted, and the



Armada drifted out into the North Sea. The Spaniards recognized the superiority of the English fleet and returned home, defeated.

1. Sir Francis Drake added wealth to the treasury and diminished Spain's \_\_\_\_\_.
  - i. unlimited power
  - ii. unrestricted growth
  - iii. territory
  - iv. treaties
  - v. Answer not available in article
2. King Philip recruited many \_\_\_\_\_ soldiers and sailors.
  - i. warlike
  - ii. strong
  - iii. accomplished
  - iv. timid
  - v. inexperienced
3. The \_\_\_\_\_ Armada set sail on May 9, 1588.
  - i. complete
  - ii. warlike
  - iii. independent
  - iv. isolated
  - v. Answer not available
4. The two battles left the Spanish fleet \_\_\_\_\_.
  - i. open to change
  - ii. triumphant
  - iii. open to attack
  - iv. defeated
  - v. discouraged
5. The Armada was \_\_\_\_\_ on one side.
  - i. closed off
  - ii. damaged
  - iii. alone
  - iv. circled
  - v. Answer not available in this article

**Do as directed**

**(1x5=05)**

- a. "The oracle", he said, "chose me as the wisest Athenian because I am the only one who knows that he doesn't know anything" (change into indirect)
- b. Look at the condition of woman. (change the voice)
- c. Is it fair to neglect woman's plight (Rewrite the following sentences into Assertive)
- d. No other civil or military mobilization in human history is as large as it (Change the Degree)
- e. Unless you take heed, you will again put to shame (Use if.....not)



**Subject: Environmental Studies**

**Course: B.A (Bio)**

**Time: 2 Hours**

**Full Marks: 35**

**Pass Marks: 14**

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**PART A**

**Q.1) All questions are compulsory**

**A] Multiple Choice Questions:**

**(1x5=5)**

- a) Fossile fuels are–
- renewable
  - non-renewable
  - exhaustible
  - None of above
- b) Salim Ali's name is synonymous with?
- Ornithology in India
  - Limnology in India
  - Entomology in India
  - None of the above
- c) Any Energy flow in an ecosystem is
- Unidirectional
  - Bidirectional
  - Multidirectional
  - None of the above
- d) Zoological Survey of India is at
- New Delhi
  - Kolkata
  - Mumbai
  - Chennai
- e) World Forest day is celebrated on
- 21<sup>st</sup> March
  - 5<sup>th</sup> June
  - 1<sup>st</sup> Dec
  - 7<sup>th</sup> June

**B] Very Short question**

(5x2=10)

- a) Ecological pyramid
- b) Sundarlal Bahuguna
- c) Food chain
- d) Renewable resources
- e) National parks

**PART B**

**Q2. Answer any Two:**

(2x5=10)

- i) What is sustainable development? Write the goals of Sustainable Development.
- ii) Explain with neat sketch of energy flow in ecosystem.
- iii) What is energy? Write the pros and cons of solar energy.
- iv) Explain the followings.
  - a) Family welfare program.
  - b) Poverty and Environment.

**PART C**

**Answer any One:**

(1x10=10)

**Q.3)** What is an Ecosystem? Describe aquatic ecosystem in detail.

**Q.4)** What do you understand by population growth? Write the environmental problem related to population growth.

**Q.5)** What is a natural resource? Describe the major types of natural resource and their associated problems.