



## ARKA JAIN University, Jharkhand

2<sup>nd</sup> Semester Final Examination – 2018-19

Subject: Mammalian Physiology  
Full Marks: 60  
Time: 3 Hours

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) Muscle which is striated and has multiple nuclei in its fibers
- |              |                  |
|--------------|------------------|
| i) Skeleton  | ii) Smooth       |
| iii) Cardiac | iv) All of these |
- b) Urea is the chief nitrogenous waste in
- |           |          |
|-----------|----------|
| i) Fish   | ii) Bird |
| ii) Human | iv) Fish |
- c) The functional unit of contractile in skeleton muscle is
- |                   |               |
|-------------------|---------------|
| i) Sarcomere      | ii) Z band    |
| iii) Cross bridge | iv) Myofibril |
- d) Which of the following is act as secondary messenger in hormone action
- |                |                  |
|----------------|------------------|
| i) cAMP        | ii) cGMP         |
| iii) $Ca^{+2}$ | iv) All of these |
- e) Which one of the following sets of ions is necessary in the chemical events for muscle contraction?
- |                             |                             |
|-----------------------------|-----------------------------|
| i) $Na^{+}$ and $Ca^{+2}$   | ii) $Ca^{+2}$ and $Mg^{+2}$ |
| iii) $Na^{+}$ and $Mg^{+2}$ | iv) $Na^{+}$ and $K^{+}$    |
- f) At rest, the action potential of neuron axon is
- |            |           |
|------------|-----------|
| i) -30mV   | ii) -70mV |
| iii) 50 mV | iv) 80mV  |
- g) The point at which the terminal button and another neuron communicate is called
- |                    |                       |
|--------------------|-----------------------|
| i) Synapse         | ii) Axon hillock      |
| iii) Crossing over | iv) Nerve propagation |
- h) After digestion, fats enter lymphatic capillaries known as
- |               |                  |
|---------------|------------------|
| i) Villi      | ii) Chylomicrons |
| iii) Lacteals | iv) Microvilli   |



- i) The blood vessels that supply blood to the walls of the heart are called
- |                      |                       |
|----------------------|-----------------------|
| i) Coronary arteries | ii) Coronary Veins    |
| iii) Aorta           | iv) Superior Venacana |
- j) The hormone that controls the level of calcium and phosphorus in blood is secreted by
- |                      |                       |
|----------------------|-----------------------|
| i) Thyroid gland     | ii) Parathyroid gland |
| iii) Pituitary gland | iv) Thymus            |

**B] Very Short question**

**(5x2=10)**

- a) Chloride shift
- b) Haemopoiesis
- c) Cardiac cycle
- d) Isometric contraction
- e) Saltatory conduction

**PART B**

**Answer any Four:**

**(4x5=20)**

**Q.2)** Write the function of

- a) Pancreatic juice and
- b) Bile

**Q.3)** Describe the feedback mechanism of hormone action with an example.

**Q.4)** Describe the exchange of respiratory gases that take place in the alveoli/lung and tissue.

**Q.5)** Describe the process of blood clotting in human beings

**Q.6)** Describe the functions of hormones released by pituitary gland.

**PART C**

**Answer any two:**

**(2x10=20)**

**Q.7)** Describe the structure of skeletal muscle and explain the mechanism of muscle contraction.

**Q.8)** What is digestion? Describe the digestion of protein.

**Q.9)** Explain the structure of nephron. Describe the mechanism of urine formation.

**Q.10)** Describe the mechanism of action of hormones.





Subject: Biotechnology and Human Welfare

Full Marks: 60

Time: 3 Hours

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) Biotechnology is used in areas including
- |                      |                    |
|----------------------|--------------------|
| i) Agriculture       | ii) Bioremediation |
| iii) Food processing | iv) All the above  |
- b) Cry IIB is effective for
- |                |                 |
|----------------|-----------------|
| i) Diptera     | ii) Lepidoptera |
| ii) Coleoptera | iv) Nematodes   |
- c) Which of the following is a combined vaccine
- |                        |                 |
|------------------------|-----------------|
| i) Hepatitis B vaccine | ii) Hib Vaccine |
| iii) Var vaccine       | iv) DPT vaccine |
- d) The human genome project (HGP) is an international effort being started in
- |           |          |
|-----------|----------|
| i) 1990   | ii) 1992 |
| iii) 1994 | iv) 1996 |
- e) Distillation is a separation process for a mixture of liquids which relies on differences in
- |                  |                   |
|------------------|-------------------|
| i) Melting point | ii) Boiling point |
| iii) Solubility  | iv) None of these |
- f) Which of the following microorganisms help in the production of ethanol production
- |                                    |                              |
|------------------------------------|------------------------------|
| i) <i>Saccharomyces cerevisiae</i> | ii) <i>Zygomonas mobilis</i> |
| iii) <i>Saccharomycesuvarum</i>    | iv) All of these             |
- g) The term DNA-fingerprinting was introduced for the first time by
- |                 |                       |
|-----------------|-----------------------|
| i) Alec Jeffrey | ii) Botstein          |
| iii) E. Jenner  | iv) None of the above |
- h) The highest content of alcohol present in
- |           |            |
|-----------|------------|
| i) Brandy | ii) Whisky |
| iii) Rum  | iv) Vodka  |
- i) Active immunization include



- i) Photoperiodism
- ii) Verbalization
- iii) Photolysis
- iv) Transpiration

- j) The transgenic animals are those which have
- i) foreign DNA in some of their cells
  - ii) foreign DNA in all of their cells
  - iii) foreign RNA in all of their cells
  - iv) Both (A) and (C)

**B] Very Short question(5x2=10)**

- a) Protein engineering
- b) Vaccine
- c) PHB
- d) Bt toxin
- e) Human genome project

**PART B**

**Answer any Four:**

**(4x5=20)**

**Q.2)** Write the biological degradation of chlorinated organic pollutant.

**Q.3)** What is recombinant DNA vaccine?

**Q.4)** What is enzyme engineering? Describe the objectives and steps of enzyme engineering..

**Q.5)** Describe the HAT selection.

**Q.6)** Describe the biotechnology application for improve N<sub>2</sub> fixation.

**PART C**

**Answer any two:**

**(2x10=20)**

**Q.7)** What is gene therapy? Write the type and applications of gene therapy.

**Q.8)** What is DNA finger printing? Write the different methods of DNA finger printing.

**Q.9)** What is Monoclonal antibody? Write the applications of monoclonal antibody.

**Q.10)** Describe different methods of qualitative improvement of livestock.





# ARKA JAIN University, Jharkhand

2<sup>nd</sup> Semester Final Examination – 2018-19

Subject: Mathematics and Computer  
Full Marks: 35  
Time: 2 Hours

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 **Four Parts –A, B, C& D**
- **Part – A**(compulsory) contains **FIVE** multiple choice questions.
- **Part – B** contains **SIX** questions out of which **THREE** questions are to be answered.
- **Part – C** contains **FOUR** questions out of which **TWO** questions are to be answered.
- **Part – D** (compulsory) contains **ONE** case study.

## PART A

Q.1) Multiple Choice Questions (All questions are compulsory)

:(5x1=5)

- a) If  $A = \{1, 2, 3, 4, 5\}$ ,  $B = \{2, 4, 6, 8, 10\}$ , then  $A - B$  equals to
- {1, 2, 3}
  - {6, 8, 10}
  - {1, 3, 5}
  - None of these
- b) Which one has the fastest speed
- Cache memory
  - Register
  - Hard disk
  - Main memory
- c) The probability of an event always lies between
- 0 and 1
  - 0 and  $\infty$
  - 1 and 1
  - None of these
- d) Which of the following is not a measure of central tendency?
- Mean
  - Third quartile
  - Harmonic Mean
  - Geometric Mean
- e) Which of the following are input devices?
- Keyboard
  - Mouse
  - Card reader
  - All of these



**PART B**

(3x5=15)

Q2. If  $A = \{1, 2, 3, 5\}$ ,  $B = \{2, 4, 6, 8\}$ , then find  $A \cup B$  and  $A \cap B$ .

Q3. Explain the CPU. Also explain the various units of a computer system with proper diagram.

Q4. If  $y = \frac{x^2 - 5x + 3}{x + 2}$ , find  $\frac{dy}{dx}$

Q5. A box contains 5 white and 3 red balls. Two balls are randomly selected. Find the chance of the following events: A = getting both white balls, B = getting one white and one red balls.

Q6. What is the computer? Draw & explain the block diagram of computer.

Q7. Find standard deviation for the following data:

Marks	10	12	15	18	20
No. of student	5	12	23	17	3

**PART C**

(2x10=20)

Q8. If  $A = \{1, 3, 5, 7\}$ ,  $B = \{2, 3, 4, 5\}$ ,  $C = \{4, 5, 6, 7\}$  then verify the following  
(i)  $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ , (ii)  $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

Q9. Explain the all generations of Computers with examples.

Q10. Two dice are rolled together. Find the probabilities of the following events:  
(i) getting a sum of 6 points (ii) getting doublets only

Q11. Find median for the following data

Marks	5-10	10-15	15-20	20-25	25-30
No. of student	10	15	25	20	12

**PART D**

(1x5=5)

Q.12 A coin is tossed. If head occurs, the coin is tossed again and if tail appears, a die is thrown. Represent the above by a tree diagram and write down the sample space.





# ARKA JAIN University, Jharkhand

2nd Semester Final Examination - 2019

Subject :HINDI

Course: B B A/-JMC/BIOTECH

Time : 2 Hour

Full Marks : 35

Pass Marks: 14

- Candidates are encouraged 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 **Three** questions are to be answered.
- **Part- C** contains **Three** questions out of which **Two** question are to be answered.

## PART A

### Q.1) Multiple Choice Questions

(4x1=4)

i) मंत्र शीर्षक कहानी के रचयिता है ?

- क) प्रेमचंद      ख) प्रसाद      ग) मोहन राकेश      घ) तुलसीदास

ii) कप्तान साहब कहानी का नायक है?

- क) भक्तसिंह      ख) जगतसिंह      ग) कैलाश      घ) इनमे से कोई नहीं

iii) असदखां का लालन पालन कहाँ हुआ?

- क) घर में      ख) मामा के यहाँ      ग) बुआ के घर      घ) अनाथालय

iv) प्रेमचंद किस राज्य के थे?

- क) बिहार      ख) बंगाल      ग) उड़ीसा      घ) उत्तरप्रदेश

### (B) very short question

(2x2=4)

1) अर्थ स्पष्ट करे?

पोथी पढ़ि पढ़ि जग मुआ, पंडित भया न कोय।

ढाई आखर प्रेम का, पढ़े सो पंडित होय॥

ii) निम्नलिखित शब्दों के दो दो पर्यायवाची शब्द लिखे?

क) किसान

ख) आनंद

## PART B

Q.2) Answer any three

(3x5=15)



1) मंत्र शीर्षक कहानी के आधार पर डॉ चड्डा के ब्यक्तित्व पर प्रकाश डालिए?

ii) लिंग की परिभाषा लिखे। उनके भेदों को उदाहरण सहित लिखे ?

iii) शिक्षण शुल्क माफ कराने हेतु प्रधानाचार्य के पास एक आवेदन पत्र लिखिए?

iv) विपरीत शब्द लिखे:-

क) आय ख) इहलोक ग) अपेक्षा घ) आगमन ङ) कठिन

### PART C)

Answer any two

(6x2=12)

निबंध लिखे

Q.3) भ्रष्टाचार अथवा नारी शक्ति

Q.4) निम्नलिखित शब्दावली का हिन्दी में अनुवाद करे

i) ASSISTANT

II) CLERK

III) ADVISER

IV) OUTPUT

V) TRANSFER

VI) FINANCE

Q.5) मंत्र कहानी का सारांश लिखे?