

6. Diffusion pressure is
- Directly proportional to conc. of diffusing particles
 - Inversely proportional to conc. of diffusing particles
 - Independent of conc. of diffusing particles
 - None of the above
7. Which of the following equation is correct?
- $DPD = O.P. - T.P.$
 - $DPD = O.P. + T.P.$
 - $DPD = O.P. \times T.P.$
 - None of the above
8. Dry seeds when placed on moist filter paper absorbs water and swell up due to
- Diffusion
 - Imbibition
 - Osmotic diffusion
 - None of the above
9. Whiptail disease of cauliflower plant is caused by deficiency of
- Mo
 - B
 - Fe
 - Ni
10. First step of absorption of mineral salts by plant is
- Imbibition
 - Diffusion
 - Ion exchange
 - None of the above

Very Short Question Answer

[5x2=10]

- Turgor pressure
- Water holding capacity
- Quantasomes
- DPD
- Denitrification

PART - B

Answer any FOUR out of SIX

[4x5=20]

- Explain role and deficiency symptoms of potassium.
- Draw T.S. of monocot root.
- Discuss Red Drop and emersion enhancement effect.
- What are different photosynthetic pigments. How they are distributed in plant kingdom.
- Discuss Physiological role of auxins.
- Discuss phenomenon of Nitrogen fixation.

PART - C

Answer any TWO out of FOUR

[2x10=20]

- Draw and explain T.S. of dicot stem.
- Draw and discuss cyclic and non-cyclic phosphorylation.
- Discuss theories for passive and active absorption of mineral salt.
- Discuss external and internal factors which effects photosynthesis.

19/07

gaba



ARKAJAIN
University
Jharkhand

2nd Semester End Term Examination: 2021-22.

Subject : Math and Computer
Course : B. Sc - Biotechnology
Full Marks : 35
Roll No:
Time : 3 Hours.

Instructions to the Candidates:

- Read the question paper very carefully.
- Start writing from 2nd page onwards; **Don't Write On The 1st Page Backside.**
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PART - A

[5x1=05]

Multiple Choice Questions

1. If $A = \{1, \{2\}\}$ find $p(A) = ?$
a) 2
b) 4
c) 8
d) None of these
2. Value of n if $(n+2)! = 60(n-1)!$
a) 3
b) 4
c) 5
d) None of these
3. If set having 'm' number of elements then total no of proper subset will be
a) 2^{m-2}
b) 2^{m-2}
c) 2^{m+2}
d) None of these
4. Which of the following are input devices?
a) Keyboard
b) Mouse
c) Card reader
d) All of these
5. A formula in MS Excel starts with
a) +
b) =
c) @
d) #

Very Short Question Answer

[5x2=10]

1. If $A = \{1, 2, 3, 4\}$ and $B = \{1, 3, 5, 6\}$ find $A \Delta B$
2. Define equivalent set.
3. MS Excel
4. Microsoft office
5. Output devices

PART - B

Answer any TWO out of FOUR

[2x5=10]

1. How many 5 digits telephone numbers can be constructed using the digits 0 to 9 each no starts with 6 and no digits appears more than once?
2. What is the computer? Describe different input and output devices.
3. Prove that $(A \cup B)' = A' \cap B'$.
4. Find $\frac{dy}{dx}$ if $y = \frac{e^x + \sin x}{\log x}$

PART - C

Answer any ONE out of THREE

[1x10=10]

1. From the well shuffled pack of 52 cards, a card is drawn at random. Find the probability of getting
a) An Ace
b) A Heart
c) A Red Card
d) A Face Card
e) A Diamond
2. Find $\frac{dy}{dx}$ if
a) $y = \frac{5x^2 + 6x + 7}{2x^2 + 3x + 4}$
b) $y = (x^2 + 6x + 1)(3x^2 - x + 5)$
3. Write the types of data representation.



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2nd Semester End Term Examination: 2021-22.

Subject : Biotechnology & Human Welfare **Roll No:**

Course : B. Sc. - Biotechnology

Full Marks : 60 **Time** : 3 Hours.

Instructions to the Candidates:

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PART - A

Multiple Choice Questions

[10x1=10]

1. The term DNA-fingerprinting was introduced for the first time by
a) E. Jenner
b) Alec Jeffrey
c) Botstein
d) None of these
2. The highest content of alcohol present in
a) Brandy
b) Whisky
c) Rum
d) Vodka
3. The transgenic animals are those which have
a) Foreign DNA in some of their cells
b) Foreign DNA in all of their cells
c) Foreign RNA in all of their cells
d) Both (A) and (C)
4. Biotechnology is used in areas including
a) Agriculture
b) Bioremediation
c) Food processing
d) All of these
5. Azospirillum and Azotobacter are example of
a) Symbiotic nitrogen fixers
b) Pathogens
c) Free living nitrogen fixers
d) Decomposers

6. Which of the following enzyme is not used as a target for protein engineering in detergents?
- Proteases
 - Lipases
 - Amylases
 - Hydrolases
7. The process of introduction of weakened pathogen into human body is called
- Vaccination
 - Attenuation
 - Incubation
 - All of these
8. Gene therapy in humans was first practiced by Blease and Andresco to cure
- SCID
 - Cystic fibrosis
 - Hemophilia
 - Thalassemia
9. The human genome project (HGP) is an international effort being started in
- 1990
 - 1992
 - 1994
 - 1996
10. Which of the following microorganisms help in the production of ethanol production?
- Saccharomyces cerevisiae
 - Zygomonas mobilis
 - Saccharomyces uvarum
 - All of these

Very Short Question Answer

[5x2=10]

- Protein engineering
- Bt-toxin
- Gene therapy
- Polyhydroxybutyrate
- Human genome project

PART - B

Answer any FOUR out of SIX

[4x5=20]

- Describe the biotechnology application for improve N₂ fixation.
- What is vaccine? Describe recombinant DNA vaccine.
- Describe the biological degradation of chlorinated organic pollutant.
- What is monoclonal antibody? Write the application of monoclonal antibody.
- Write the application of biotechnology in forensic science.
- Describe the transfer of pest resistance genes to plants (any one method).

PART - C

Answer any TWO out of FOUR

[2x10=20]

- What is gene therapy? Write the type and applications of gene therapy.
- Describe different methods of qualitative improvement of livestock.

3. What is enzyme engineering? Describe the objectives and steps of enzyme engineering.

4. What is DNA finger printing? Write the different methods of DNA finger printing.



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University
Jharkhand

2nd Semester End Term Examination: 2021-22.

Subject : Mammalian Physiology **Roll No:**

Course : B. Sc - Biotechnology

Full Marks : 60 **Time** : 3 Hours.

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PART - A

Multiple Choice Questions

[10x1=10]

1. Which of the following is an anterior pituitary hormone?
a) ADH
b) Oxytocin
c) TSH
d) Cortisol
2. Muscle which is striated and has multiple nuclei in its fibers
a) Cardiac
b) Skeleton
c) Smooth
d) All of these
3. Uric acid is the chief nitrogenous waste in
a) Fish
b) Frog
c) Human
d) Bird
4. A person normally passively inhales and exhales 500 mL of air. This is called
a) Residual volume
b) Tidal volume
c) Inspiratory reserve volume
d) Expiratory reserve volume
5. What is the site of hemopoiesis in an adult?
a) Liver
b) Bone marrow
c) Kidney
d) Pancrease

6. The protein present in skeleton muscle fibre is
- Actin
 - Myosin
 - Both of these
 - None of these
7. Graves' disease is caused by
- Hyperthyroidism
 - Hypothyroidism
 - Hyper secretion of cortisol
 - None of these
8. Sarcomere is distance between
- Two I band
 - Two Z line
 - Z and A band
 - A and I band
9. In general, afferent nerves carry sensory information
- To the central nervous system
 - To the peripheral nervous system
 - From the central nervous system
 - From the cortex
10. Chemical messengers secreted by ductless glands are called
- Lymph
 - Hormone
 - Plasma
 - Platelets

Very Short Question Answer

[5x2=10]

- Isometric contraction
- Ornithine cycle
- Neurotransmitters
- Tidal volume
- Vascular spasm

PART - B

[4x5=20]

Answer any FOUR out of SIX

- Write notes on
 - Pancreatic juice
 - Parathyroid hormones
- Write the difference between skeleton, smooth and cardiac muscle fibre.
- What is hormone? Write the properties of hormones.
- What is Oxygen dissociation curve? Write the factors affecting Oxygen dissociation curve.
- Describe different mode of excretion with one example.
- Draw a labelled diagram of nephron.

PART - C

[2x10=20]

Answer any TWO out of FOUR

- What is blood? Describe the process of blood clotting in human beings.

2. Describe the transport of oxygen and carbon dioxide in the blood.

3. What is pituitary gland? Write the function of hormone secreted by pituitary gland.

4. Describe the structure of skeleton muscle and explain the mechanism of muscle contraction.



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Jharkhand

2nd Semester End Term Examination: 2021-22.

Subject : Hindi
Course : B. Sc - Biotechnology
Full Marks : 35
Roll No:
Time : 3 Hours.

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Multiple Choice Questions

[5x1=05]

PART - A

1. प्रेमचंद का जन्म स्थान है?
a) दिल्ली.
b) बनारस
c) लमही
d) इनमें से कोई नहीं
2. कप्तान साहब साहित्य की कौनसी विधा है?
a) कहानी
b) निबंध
c) उपन्यास
d) लेख
3. डॉक्टर चट्टा को कितनी संताने हैं?
a) एक
b) दो
c) तीन
d) चार
4. असदखां और तूरया के बीच क्या संबंध है?
a) बाप बेटी का
b) भाई बहन का
c) पति पत्नी का
d) इनमें से कोई नहीं

5. राी लक्ष्मी बाई के पति का क्या नाम था?

- a) गंगाधर
b) मुरलीधर
c) बंशीधर

Ver: Short Question Answer

[5x2=10]

1. निम्नलिखित शब्दों के विलोम शब्द लिखें:-
अनेकता, अनुराग
2. निम्नलिखित शब्दों के दो दो पर्यायवाची शब्द लिखें:-
अमृत, अनाथ
3. लिंग किसे कहते हैं? उसके भेद बताए।
4. निम्नलिखित हिंदी शब्दों का अंग्रेजी अनुवाद करें:-
भंडार, संगणक
5. अब्धी भाव समाज को समझा कर लिखें।

PART - B

Answer any TWO out of FOUR

[2x5=10]

1. कप्तान साहब कहानी के आधार पर भगत सिंह का चरित्र चित्रण कीजिए।
2. मंत्र शीर्षक कहानी के नारी पात्रों का चरित्र चित्रण करें।
3. फातिहा शीर्षक कहानी के आधार पर तूरया का चरित्र चित्रण करें।
4. कबीर दास की जीवनी लिखें।

PART - C

Answer any ONE out of THREE

[1x10=10]

1. समास किसे कहते हैं? उसके भेदों को उदाहरण सहित समझाएं।
2. महाविद्यालय की मुख्य समस्याओं से अवगत करने हेतु प्रधानाचार्य के पास एक आवेदन पत्र लिखें।
3. फातिहा शीर्षक कहानी का सारांश लिखें।



ARKAJAIN
University
Jharkhand

2nd Semester End Term Examination: 2021-22.

Subject : Hindi

Roll No:

Course : B. Sc - Biotechnology

Full Marks : 35

Time : 3 Hours.

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PART - A

Multiple Choice Questions

[5x1=05]

1. प्रेमचंद का जन्म स्थान है?
a) दिल्ली
b) बनारस
c) लमही
d) इनमें से कोई नहीं
2. कप्तान साहब साहित्य की कौनसी विधा है?
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b) दो
c) तीन
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a) बाप बेटी का
b) भाई बहन का
c) पति पत्नी का
d) इनमें से कोई नहीं

5. रानी लक्ष्मी बाई के पति का क्या नाम था?

- a) गंगाधर
c) बंशीधर

- b) मुरलीधर
d) इनमें से कोई नहीं

Very Short Question Answer

[5x2=10]

1. निम्नलिखित शब्दों के विलोम शब्द लिखें:-
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2. निम्नलिखित शब्दों के दो दो पर्यायवाची शब्द लिखें:-
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3. लिंग किसे कहते हैं? उसके भेद बताए।
4. निम्नलिखित हिंदी शब्दों का अंग्रेजी अनुवाद करें:-
भंडार, संगणक
5. अब्बयी भाव समाज को समझा कर लिखें।

PART - B

Answer any TWO out of FOUR

[2x5=10]

1. कप्तान साहब कहानी के आधार पर भगत सिंह का चरित्र चित्रण कीजिए।
2. मंत्र शीर्षक कहानी के नारी पात्रों का चरित्र चित्रण करें।
3. फातिहा शीर्षक कहानी के आधार पर तूरया का चरित्र चित्रण करें।
4. कबीर दास की जीवनी लिखें।

PART - C

Answer any ONE out of THREE

[1x10=10]

1. समास किसे कहते हैं? उसके भेदों को उदाहरण सहित समझाएं।
2. महाविद्यालय की मुख्य समस्याओं से अवगत कराने हेतु प्रधानाचार्य के पास एक आवेदन पत्र लिखें।
3. फातिहा शीर्षक कहानी का सारांश लिखें।