

Seat No.	
-------------	--

Total No. of Pages : 2

**B.Sc. (Part - III) (Semester - V) Examination, April - 2014****BOTANY (Paper - XI)****Genetics****Sub. Code : 54900****Day and Date : Monday, 07 - 04 - 2014****Total Marks : 40****Time : 3.00 p.m. to 5.00 p.m.**

- Instructions :**
- 1) All questions are compulsory.
  - 2) Draw neat labelled diagrams wherever necessary.
  - 3) Figures to right indicate full marks.

**Q1) Rewrite the following sentences by choosing most correct alternative: [8]**

- a) The character expressed in  $F_1$  generation is called ----- character.
  - i) dominant
  - ii) dominant and recessive
  - iii) recessive
  - iv) suppressed
- b) Complementary gene interaction shows ratio -----,
  - i) 9 : 7
  - ii) 9 : 3 : 3 : 1
  - iii) 12 : 3 : 1
  - iv) 1 : 1 : 1 : 1
- c) The gene that inhibits the expression of another gene is known as ----- gene.
  - i) epistatic
  - ii) hypostatic
  - iii) inhibitory
  - iv) dominant
- d) Gray body with vestigial wings is example of -----,
  - i) complete linkage
  - ii) complete & incomplete linkage
  - iii) incomplete linkage
  - iv) re combination



e) Polygene inheritance shows ----- character.

- |                |                  |
|----------------|------------------|
| i) qualitative | ii) quantitative |
| iii) recessive | iv) genotypic    |

f) Hardy - Weinberg law is  $(p + q)^2 =$  -----.

- |                        |                         |
|------------------------|-------------------------|
| i) $p^2 + 4pq + q^2$   | ii) $2p^2 + 4pq + 2q^2$ |
| iii) $p^2 + 2pq + q^2$ | iv) $p^3 + 2pq + q^3$   |

g) Centromere remains in the inverted region of the chromosome is said to be -----.

- |                            |                           |
|----------------------------|---------------------------|
| i) Paracentric inversion   | ii) Pericentric inversion |
| iii) Nanocentric inversion | iv) Actocentric inversion |

h) Double bar eye is produced in *Drosophila* due to -----.

- |                    |                |
|--------------------|----------------|
| i) Duplication     | ii) Inversion  |
| iii) Translocation | iv) Deficiency |

**Q2) Attempt any two of the following:** [16]

- What is gene interaction? Explain Supplementary gene interaction.
- Define linkage. Explain incomplete linkage with suitable example.
- What is chromosomal aberration? Describe any two types of chromosomal aberrations.

**Q3) Attempt any four of the following:** [16]

- Back cross.
- Plastid inheritance.
- Self incompatibility.
- Law of segregation.
- Sex chromosome.
- Crossing Over.





**D – 167**

**Total No. of Pages : 3**

Seat No.	
----------	--

**B.Sc. (Part - III) (Semester - V) Examination, April - 2014**

**CHEMISTRY (Paper - XI)**

**Organic Chemistry**

**Sub. Code : 54894**

**Day and Date : Monday, 07 - 04 - 2014**

**Total Marks : 40**

**Time : 3.00 p.m. to 5.00 p.m.**

- Instructions :**
- 1) All questions are compulsory.
  - 2) Figures to the right indicate full marks.

**Q1) Select the most correct alternative and rewrite the following sentences. [8]**

a) Wagner - Meerwein rearrangement involves the formation of ----- intermediate.

- |                   |               |
|-------------------|---------------|
| i) Carbocation    | ii) Carbanion |
| iii) Free radical | iv) Carbene   |

b) ----- does not show mutarotation.

- |              |              |
|--------------|--------------|
| i) glucose   | ii) fructose |
| iii) sucrose | iv) maltose  |

c) ----- is a chromophore.

- |                        |                                      |
|------------------------|--------------------------------------|
| i) - OH                | ii) - OC <sub>2</sub> H <sub>5</sub> |
| iii) - NH <sub>2</sub> | iv) - NO <sub>2</sub>                |



d) ----- is an antidiabetic drug.

- |               |                   |
|---------------|-------------------|
| i) Isoniazide | ii) Tolbutamide   |
| iii) Paludrin | iv) Chloromycetin |

e) ----- is a natural isecticide.

- |                  |                |
|------------------|----------------|
| i) Monocrotophos | ii) Carbaryl   |
| iii) Endosulphan | iv) Pyrethroid |

f) Phosphorus ylid ( $\text{Ph}_3\text{P} = \text{CH}_2$ ) is involved in ----- reaction.

- |                        |             |
|------------------------|-------------|
| i) Oppenauer oxidation | ii) Wittig  |
| iii) Reformatsky       | iv) Hofmany |

g) Lower aldoses are converted into higher aldoses by ----- reaction.

- |                   |                 |
|-------------------|-----------------|
| i) Weermann       | ii) Killiani's  |
| iii) Mutarotation | iv) Methylation |

h) Antipyretic drug is used to -----.

- |                           |                               |
|---------------------------|-------------------------------|
| i) lower body temperature | ii) to control sleep          |
| iii) to induce sleep      | iv) increase body temperature |



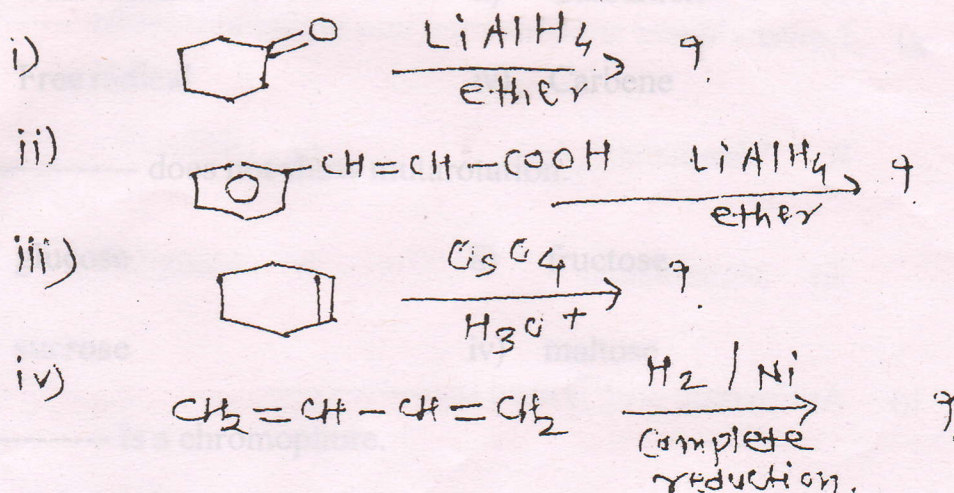
**Q2)** Attempt any two of the following:

- a) Explain the following reactions with their mechanism.
  - i) Hofmann bromamide reaction.
  - ii) Oppenauer oxidation.
- b) i) What are the objections raised against open chain structure of D-glucose?  
 ii) Explain how ring size in D-glucose is determined by methylation method.
- c) What are drugs? Give synthesis of following drugs.
  - i) Paludrin.
  - ii) Isoniazide.
  - iii) Ibuprofen.

**Q3)** Attempt any three of the following:

[12]

- a) What are dyes? Give synthesis of Malachite green.
- b) What are agrochemicals? Give synthesis of Indole - 3 - Acetic acid (IAA).
- c) Explain structure of cellulose and give its uses.
- d) Give the synthesis of Diamond Black - F dye.
- e) Predict the product and rewrite the reaction.





Seat No.	
----------	--

**B.Sc. (Part - III) (Semester - V) Examination, April. - 2014**

**ELECTRONICS (Paper - XI)**

**8051 Microcontroller**

**Sub. Code : 54930**

**Day and Date : Monday, 7 - 4 - 2014**

**Total Marks : 40**

**Time : 3.00 p.m. to 5.00 p.m.**

- Instructions :**
- 1) All questions are compulsory.
  - 2) Figures to the right indicate full marks.
  - 3) Use of scientific calculator is allowed.
  - 4) Draw the neat diagrams whenever necessary.

**Q1) Select most correct alternative**

**[8]**

- a) If crystal connected to 8051 is of 12 Mhz then period of machine cycle is
  - i) 1.085  $\mu$ s
  - ii) 0.75  $\mu$ s
  - iii) 1  $\mu$ s
  - iv) 0.60  $\mu$ s
- b) Bit addressable locations in 8051 RAM are
  - i) 10 H through 1 FH
  - ii) 20 H through 2 FH
  - iii) 30 H through 3 F H
  - iv) 40 H through 4 F H
- c) Which of the following instruction will load the value 35 H into high byte of timer 0
  - i) MOV TH0, # 35 h
  - ii) MOV TH0, 35 h
  - iii) MOV T 0, # 35 h
  - iv) MOV TH1, # 35 h
- d) If accumulator contents are FF H then after instruction XRL A, A
  - i) OF h
  - ii) FO h
  - iii) OOH
  - iv) 01 H
- e) If Acc = 0F then after SWAP instruction A =
  - i) FF
  - ii) 00
  - iii) F0
  - iv) 0F
- f) To use timer as counter \_\_\_\_\_ of TMOD register is =
  - i) Gate = 1
  - ii) Gate = 0
  - iii) C/T = 0
  - iv) C/T = 1



- g) To set the baud rate \_\_\_\_\_ is used.
- i) Timer 0 in mode 1
  - ii) Timer 0 in mode 0
  - iii) Timer 1 in mode 2
  - iv) Timer 1 in mode 1
- h) Number of interrupt in 8051 are \_\_\_\_\_.
- i) One
  - ii) Two
  - iii) Six
  - iv) Eight

**Q2) Answer in brief (Any Two)**

[16]

- a) Explain importance of RI and TI flags. and write an assembly language program to send character 'R' serially to Hyper Terminal of IBM PC. Use Baud Rate 9600.
- b) With neat block diagram explain architecture of 8051 microcontroller.
- c) Explain TMOD register of timer? Write a program to generate 2 kHz square at P1.0 pin of 8051.

**Q3) Answer the following :(Any Four)**

[16]

- a) How ADD instruction is used in different addressing modes of 8051.
- b) What are different criteria for choosing microcontroller.
- c) Explain with example arithmetic instructions of 8051.
- d) Explain PSW register, and how it is used to select register bank.
- e) Write note on interrupts in 8051.
- f) Explain RAM inside the 8051.





Seat No.	
----------	--

**B.Sc. (Part - III) (Semester - V) Examination, April. - 2014**

**MICROBIOLOGY (Paper - XI)**

**Food and Industrial Microbiology**

**Sub. Code : 54925**

**Day and Date : Monday, 7 - 4 - 2014**

**Total Marks : 40**

**Time : 3.00 p.m. to 5.00 p.m.**

- Instructions :**
- 1) All questions are compulsory.
  - 2) Figures to the right indicate full marks.

**Q1) Rewrite the following sentences by selecting correct alternative. [8]**

- a) The buffering power of \_\_\_\_\_ is low.
  - i) Meat
  - ii) Milk
  - iii) Curd
  - iv) Vegetable juices
- b) Aflatoxins \_\_\_\_\_ are excreted in the vrine, feaces and milk of manimels.
  - i)  $M_1$  &  $M_2$
  - ii)  $B_1$  &  $G_1$
  - iii)  $B_2$  &  $M_2$
  - iv)  $G_1$  &  $G_2$
- c) \_\_\_\_\_ is the most widely used method for long term preservation of cultures.
  - i) Soil stocks
  - ii) Lyophilization
  - iii) Serial subculture
  - iv) Overlaying with mineral oil
- d) In Penicillin fermentation corn steep liquor is used as a source of \_\_\_\_\_.
  - i) Acetic acid
  - ii) Phenyl lactic acid
  - iii) Phenyl acetic acid
  - iv) Lactic acid
- e) Algal scp is poor source of \_\_\_\_\_.
  - i) Vitamin A
  - ii)  $\beta$  carotene
  - iii) Ascorbic acid
  - iv) Vitamin  $B_{12}$



f) The daily requirement of vitamin B<sub>12</sub> for human beings

is \_\_\_\_\_ mg/day.

i) 0.001

ii) 0.01

iii) 0.1

iv) 1

g) Ammonium sulphate is used for the precipitation of \_\_\_\_\_.

i) Proteins

ii) Lipids

iii) Phospholipids

iv) Carbohydrates

h) \_\_\_\_\_ is an example of floating dome digester.

i) Janata

ii) Deenbandhy

iii) KVIC

iv) Krishna

Q2) Attempt any two of the following :

[16]

- What is food poisoning? Discuss in brief staphylococcal food poisoning.
- What is Biogas? Discuss in detail microbiology and biochemistry of it.
- Describe industrial production of vitamin B<sub>12</sub>.

Q3) Write short notes on any four :

[16]

- Raw materials used in alcohol fermentation.
- Salmonellosis.
- Flow sheet of production of red wine.
- Applications of probiotics.
- Product recovery by crystalization.
- Production of algal scp.





Seat No.	
----------	--

**B.Sc. (Part - III) (Semester - V) Examination, April - 2014**  
**MATHEMATICS (Paper - XI)**  
**Partial Differential Equations**  
**Sub. Code : 54878**

Day and Date : Monday, 7 - 4 - 2014

Total Marks : 40

Time : 3.00 p.m. to 5.00 p.m.

- Instructions : 1) All questions are compulsory.  
 2) Figures to the right indicate full marks.

**Q1)** Select the correct alternative for each of the following : [8]

a) The partial differential equation from the relation  $Z = ax + by + (a^2 + b^2)$  is formed as \_\_\_\_\_.

i)  $Z = px + qy + (a^2 + b^2)$       ii)  $Z = px + qy - p^2 + q^2$

iii)  $Z = px + qy + p^2 - q^2$       iv)  $Z = px + qy - p^2 - q^2$

b) The complete integral of the partial differential equation  $p + q = 1$ , is \_\_\_\_\_

i)  $Z = ax + (1 - a)y + c$       ii)  $Z = ax - (a - 1)y + c$

iii)  $Z = ax + (1 - a)y + c$       iv)  $Z = ax + (a - 1)y + c$

c) One integral of the partial differential equation  $p - q = x^2$ , is \_\_\_\_\_.

i)  $x + y = c_1$       ii)  $x - y = c_1$

iii)  $x^2 + y^2 = c_1$       iv)  $x^2 - y^2 = c_1$

d) The complete integral of the partial differential equation  $Z = px + qy + 2\sqrt{pq}$  is \_\_\_\_\_

i)  $Z = ax - by - 2\sqrt{ab}$       ii)  $Z = ax + by - 2\sqrt{ab}$

iii)  $Z = ax - by + 2\sqrt{ab}$       iv)  $Z = ax + by + 2\sqrt{ab}$

**P.T.O.**



e) The solution of the partial differential equation  $[25D^2 - 40DD' + 16D'^2]Z = 0$  is \_\_\_\_\_

i)  $\phi_1(4x + 5y) + x\phi_2(4x + 5y)$

ii)  $\phi_1(4x + 5y) - x\phi_2(4x + 5y)$

iii)  $\phi_1(4y + 5x) + x\phi_2(4y + 5x)$

iv)  $\phi_1(4y + 5x) - x\phi_2(4y + 5x)$

f) The solution of the partial differential equation  $[D - 2D' + 3]^2 Z = 0$  is \_\_\_\_\_.

i)  $Z = e^{3x}[\phi_1(y + 2x) + x\phi_2(y + 2x)]$

ii)  $Z = e^{3x}[\phi_1(y + 2x) - x\phi_2(y + 2x)]$

iii)  $Z = e^{-3x}[\phi_1(y + 2x) + x\phi_2(y + 2x)]$

iv)  $Z = e^{-3x}[\phi_1(y + 2x) - x\phi_2(y + 2x)]$

g) The Particular integral of the partial differential equation  $[D^2 + 2DD' + D'^2]Z = e^{2x+3y}$  is \_\_\_\_\_

i)  $\frac{e^{2x+3y}}{13}$

ii)  $\frac{e^{2x-3y}}{13}$

iii)  $\frac{e^{2x+3y}}{25}$

iv)  $\frac{e^{2x-3y}}{25}$

h) The particular integral of the partial differential equation  $[D^2 + D'^2]Z = 30(2x + y)$  is \_\_\_\_\_.

i)  $(2x + y)$

ii)  $(2x + y)^2$

iii)  $(2x + y)^4$

iv)  $(2x + y)^3$



Q2) Attempt any Two of the following :

[16]

- a) i) Find the partial differential equation from the relation

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1 \text{ by eliminating the arbitrary constants } a, b \text{ and } c.$$

- ii) Find the partial differential equation, by eliminating the arbitrary function
- $f$
- from the relation
- $Z = e^{ax+by} \cdot f(ax-by)$
- .

- b) Explain the method of finding the solution of the non homogeneous linear partial differential equation
- $[D - mD' - k]Z = 0$
- Where

$$D = \frac{\partial}{\partial x}, D' = \frac{\partial}{\partial y} \text{ Hence Solve } [D - D' + 1][D + 3D' - 2]Z = 0.$$

- c) Explain the Charpit's method of solving the partial differential equation

$$f(x, y, z, p, q) = 0 \text{ where } p = \frac{\partial z}{\partial x}, q = \frac{\partial z}{\partial y}.$$

Q3) Attempt any Four of the following :

[16]

- a) Find the complete integral of the partial differential equation
- $p^3 + q^3 = 27z$
- .

- b) Solve the partial differential equation
- $p^2 + q^2 = npq$
- .

- c) Solve by Lagrange's method.
- $x(y^2 + z)p - y(x^2 + z)q = z(x^2 - y^2)$
- .

- d) Solve :
- $[4r - 4s + t] = 16 \log(x + 2y)$
- .

- e) Solve :
- $(D - 3D' + 2)^2 z = 2e^{2x} \tan(y + 3x)$
- .

- f) Solve :
- $\left( x^2 \frac{\partial^2 z}{\partial x^2} + 2xy \frac{\partial^2 z}{\partial x \partial y} - x \frac{\partial z}{\partial x} \right) = \frac{x^3}{y^2}$
- .





Seat No.	
----------	--

**B.Sc. (Part - III) (Semester - V) Examination, April - 2014**

**PHYSICS (Paper - XI) (New)**

**Classical Mechanics**

**Sub. Code : 59872**

**Day and Date : Monday, 07 - 04 - 2014**

**Total Marks : 40**

**Time : 3.00 p.m. to 5.00 p.m.**

- Instructions :**
- 1) All the questions are compulsory.
  - 2) Figures to the right indicates full marks.
  - 3) Use of logarithmic table and calculator are allowed.
  - 4) Neat diagrams must be drawn wherever necessary.

**Q1) Select correct alternatives.**

**[8]**

- a) The Coriolis force is maximum at the -----
  - i) pole
  - ii) equator
  - iii) tropic of cancer
  - iv) tropic of capricorn
- b) Which of the following is not a type of constraints?
  - i) holonomic
  - ii) non - holonomic
  - iii) scleronomic
  - iv) non - scleronomic
- c) There will be ----- Lagrangian equations for motion of a bead sliding on a rotating wire.
  - i) two
  - ii) one
  - iii) three
  - iv) four



d) The equation  $\ddot{x}_1 + \frac{g}{l}x_1 = 0$ , represents simple harmonic oscillations with frequency  $\omega_2 =$  -----.

i)  $\sqrt{\frac{g}{l}}$

ii)  $\sqrt{\frac{l}{g}}$

iii)  $\sqrt{g \cdot l}$

iv)  $\sqrt{\frac{1}{l \cdot g}}$

e) The equation of shortest distance between two points in a plane is -----.

i)  $y = ax^2 + b$

ii)  $y = ax^3 + b$

iii)  $y = ax + b$

iv)  $y = x + b$

f) Cyclon formed in southern hemisphere are in ----- direction.

i) clockwise

ii) random

iii) anticlockwise

iv) none of these

g) If the total torque acting on a particle is zero, then its -----.

i) angular momentum is conserved

ii) linear momentum is conserved

iii) total energy is conserved

iv) both linear and angular momentum is conserved

h) The degrees of freedom (f) of a system with N-particles are related to equations of constraints (k) by the relation -----.

i)  $F = 3N + k$

ii)  $F = 3N - k$

iii)  $f = 3Nk$

iv)  $f = \frac{3N}{k}$



Q2) Attempt any two of the following:

- State and prove the law of conservation of angular momentum for a system of particles.
- State Hamilton's principle. Derive Lagrange's equation of motion from Hamilton's principle.
- Show that angular acceleration of a particle is the same in fixed and rotating co-ordinate system.

Q3) Attempt any four of the following:

[16]

- State and explain principle of virtual work.
- What is Coriolis force? Explain its effect in the formation of cyclon.
- Show that energy transfer between two coupled pendulums is periodic.
- Write a note on generalised co-ordinates.
- Explain Atwood's machine and obtain an expression for its acceleration.
- Write a note on normal modes and normal co-ordinates of a coupled oscillatory system.



i) two

ii) one

iii) three

iv) four



Seat No.	
----------	--

B.Sc. (Part - III) (Semester - V) Examination, April. - 2014

STATISTICS (Paper- XI)

Design of Experiments

Sub. Code : 54912

Day and Date : Monday, 7 - 4 - 2014

Total Marks : 40

Time : 3.00 p.m. to 5.00 p.m.

- Instructions : 1) All questions are compulsory.  
2) Figures to the right indicate full marks.

Q1) Choose the correct alternative. [8]

- a) The analysis of RBD is analogous to ANOVA for \_\_\_\_\_ classification.  
i) One way ii) Two way  
iii) Three way iv) none of these
- b) In Latin Square Design with one missing observation, if treatments are 4 then the error degrees of freedoms are \_\_\_\_\_.  
i) 6 ii) 15  
iii) 5 iv) None of these
- c) When the interaction effect is confounded in all the replicates, then it is called \_\_\_\_\_ confounding.  
i) incomplete ii) partially  
iii) complete iv) none of these
- d) The experimental error in mathematical model of design of experiment follows \_\_\_\_\_ distribution.  
i) i.i.d.N(0,  $\sigma_e^2$ ) ii) i.i.d.N(1,  $\sigma_e^2$ )  
iii) i.i.d.N(2,  $\sigma_e^2$ ) iv) None of these
- e) In  $2^2$  factorial experiment with 4 blocks the degrees of freedoms for error are \_\_\_\_\_.  
i) 15 ii) 16  
iii) 9 iv) none of these



- f) In an experiment the parameters are estimated by the method of \_\_\_\_.
- moments
  - iteration
  - least squares
  - none of these
- g) In ANOCOVA the least square estimate of  $\beta =$  \_\_\_\_.
- $E_{xx}/E_{yy}$
  - $E_{xy}/E_{xx}$
  - $E_{yy}/E_{xy}$
  - none of these
- h) In  $4 \times 4$  LSD, if error sum of squares = 156.37 then mean S.S due to error = \_\_\_\_.
- 33.27
  - 26.06
  - 17.34
  - None of these

**Q2) Attempt any Two out of three of the following : [8 + 8]**

- Define Randomised Block Design. Explain the analysis of the mathematical model, hypothesis to be tested, split of total sum of squares into different components and ANOVA table.
- Define factorial experiment. Give the mathematical model, Null hypothesis and analysis of variance table for  $2^3$  factorial experiment.
- Give the concept and definition of efficiency of a design. Derive the expression of efficiency of LSD over CRD.

**Q3) Attempt any four of the following : [4 + 4 + 4 + 4]**

- Define the following terms in the design of experiment :-
  - Treatments
  - Blocks
- What is missing plot technique? Derive an expression for single missing observation in RBD.
- Give the test of equality of two specified treatment effects in RBD.
- What are the three basic principles of experimental design? Explain the Randomisation principle.
- State the meaning of ANOCOVA. Give any two practical situations where it is applicable.
- What is confounding in a factorial experiment? Explain total confounding.





D – 170

Seat No.	
----------	--

Total No. of Pages : 2

**B.Sc. (Part - III) (Semester - V) (Revised) Examination, April - 2014**  
**ZOOLOGY (Paper - XI) (New)**

**Physiology**

**Sub. Code : 59861**

**Day and Date : Monday, 07 - 04 - 2014**

**Total Marks : 40**

**Time : 3.00 p.m. to 5.00 p.m.**

- Instructions :**
- 1) All questions are compulsory.
  - 2) Figures to the right indicate full marks.
  - 3) Neat labelled diagrams must be draw wherever necessary.

**Q1) Select the correct answer from the following and rewrite the complete sentence:**  
**[8]**

- a) The protein digesting enzyme is \_\_\_\_\_.
  - i) Trypsin, Chemotrypsin
  - ii) Lipase
  - iii) Amylase
  - iv) Maltase
- b) Breakdown of glycogen into glucose is known as \_\_\_\_\_.
  - i) Glycolysis
  - ii) Glycogenesis
  - iii) Glycogenolysis
  - iv) Gluconeogenesis
- c) The chief source of Vit-A is \_\_\_\_\_.
  - i) Cabbage
  - ii) Cauliflower
  - iii) Carrot
  - iv) Milk
- d) Pneumotoxic respiratory center is present in \_\_\_\_\_.
  - i) Medulla
  - ii) Pons
  - iii) Cerebrum
  - iv) Spinal cord



e) A.V. node of conducting system of heart is also known as \_\_\_\_\_.

- |                   |                       |
|-------------------|-----------------------|
| i) Pace maker     | ii) Pace setter       |
| iii) Pace blocker | iv) None of the above |

f) Bowman's capsule is site of \_\_\_\_\_.

- |                       |                            |
|-----------------------|----------------------------|
| i) Tubular secretion  | ii) Selective reabsorption |
| iii) Ultra filtration | iv) Passive absorption     |

g) The structural and functional unit of muscle contraction is the \_\_\_\_\_.

- |                   |                     |
|-------------------|---------------------|
| i) Actin filament | ii) Myosin filament |
| iii) Sarcomere    | iv) 'H' Zone        |

h) Saltatory conduction of nerve impulse is always present in \_\_\_\_\_.

- |                           |                                 |
|---------------------------|---------------------------------|
| i) Medullated nerve fiber | ii) Non Medullated nerve fibers |
| iii) Motor fibers         | iv) Sensory fibers              |

**Q2)** Attempt any two of the following:

**[16]**

- Describe in detail digestion of carbohydrates.
- Explain the transport of  $\text{CO}_2$  in the blood.
- Explain in detail cardiac cycle.

**Q3)** Attempt any four of the following:

**[16]**

- Deamination.
- Night blindness.
- Arterial blood pressure.
- Composition of normal urine.
- Glycogenesis.
- Scurvy.

