



## CADET COLLEGE WANA

### MODEL PAPER CHEMISTRY FOR FIRST YEAR CLASS

Total Marks: 50

Time: 1 Hour

#### SECTION A (Marks 10)

**Note.** Attempt all questions from this section.

**Q.1** Encircle the correct option from the following

- i. The number of atoms in one mole of nitrogen ( $N_2$ ) is
  - a.  $6.022 \times 10^{23}$
  - b.  $3.011 \times 10^{23}$
  - c.  $12.044 \times 10^{23}$
  - d. None of These
- ii. Alkali metals are very reactive due to
  - a. High Electron Affinity
  - b. Low Ionization Potential
  - c. Greater Electronegativity
  - d. All of these
- iii. Which one does not produce a neutral Solution when dissolved in water
  - a.  $NaNO_3$
  - b.  $NaCl$
  - c.  $NH_4Cl$
  - d.  $Na_2SO_4$
- iv. Which one is not a polar molecule
  - a.  $HCl$
  - b.  $H_2O$
  - c.  $CO$
  - d.  $H_2$
- v. Products obtained during the electrolysis of brine are.
  - a.  $NaOH$  and  $Cl_2$
  - b.  $NaOH$  and  $H_2$
  - c. None of these
  - d.  $NaOH, Cl_2$  and  $H_2$
- vi.  $C_nH_{2n-2}$  is the general formula of
  - a. Alkane
  - b. Alkyle
  - c. Alkyne
  - c. Alkene
- vii. Enthalpy of water vapors is always \_\_\_\_\_ the water itself.
  - a. Less than
  - b. Greater than
  - c. Equal to
  - d. All of these
- viii. PH of neutral solution is
  - a. Less than 7
  - b. equal to 7
  - c. More than 7
  - d. None of these
- ix. In the reaction  $Mg + Br_2 \rightarrow MgBr_2$ 
  - a.  $Mg$  is oxidized
  - b.  $Mg$  is reduced
  - c.  $Mg$  is not changed
  - d. All of these
- x. The functional group  $-COOH$  is called
  - a. Alcohol
  - b. Aldehyde
  - c. Carboxyl
  - d. Amine

## SECTION B (Marks 40)

**Note:** Attempt any eight questions from this section. Each question carries 5 marks.

- Q- II      What is a co-ordinate covalent bond? Explain it with the formation of hydronium ion [ $\text{H}_3\text{O}^+$ ]
- Q- III     Describe Lewis acid-base concept with an example.
- Q- IV     Explain hardness of water and its types briefly.
- Q- V      Briefly explain Electronegativity and its trends in the periodic table.
- Q- VI     Describe solvay process for the manufacture of Ammonia.
- Q- VII    What is isotope? Discuss the isotopes of hydrogen.
- Q- VIII   What is fractional distillation? Describe the fractional distillation of petroleum.
- Q- IX     What is halogenation reaction? Write step wise chemical equations for the reaction of  $\text{Cl}_2$  with  $\text{CH}_4$ .
- Q- X      What are vitamins? Discuss briefly the types of vitamins.
- Q- XI     What is DNA? Explain briefly.



## CADET COLLEGE WANA

### MODEL PAPER COMPUTER SCIENCE FOR FIRST YEAR CLASS

Total Marks: 50

Time: 1 Hour

#### SECTION A (Marks 10)

**Note.** Attempt all questions from this section.

**Q.1** Encircle the correct option from the following

- i. In which generation computer transisters were used?  
a. Third                                      b. first                                      c. second                                      d. fourth
- ii. Which of the following structures repeats one or more operation?  
a. sequence                                      b. selection                                      c. loop                                      d. decision
- iii. Which of the following is an input device for voice recording?  
a. Scanner                                      b. Keyboard                                      c. Microphone                                      d. speaker
- iv. Which software helps in finding and removing errors in programs?  
a. linker                                      b. text editor                                      c. loader                                      d. debugger
- v. How many bytes are set aside by the compiler for a variable of type int?  
a. 2                                      b. 3                                      c. 4                                      d. 5
- vi. Which Escape sequence is used to moves curser to the beginning of current line?  
a. \b                                      b. \a                                      c. \n                                      d. \\
- vii. Which of the following is a logical operator?  
a. %                                      b. <=                                      c. &&                                      d. +=
- viii. Which statement is equivalent to "k=k + a;"?  
K+=a;                                      b. k+=a;                                      c. k++a;                                      d. k=a++;
- ix. Which of the following should not be written down or share with others?  
a. Password                                      b. User Id                                      c. program                                      d. data
- x. Which of the following is also called counter loop?  
a. do-while                                      b. while                                      c. for                                      d. if-else

## SECTION B (Marks 40)

**Note: Attempt any eight questions from this section. Each question carries 5 marks.**

**Draw neat and labelled diagram where necessary**

- Q-2 Differentiate between system software and application
- Q-3 What is Algorithm and what is the role of algorithm in problem solving?
- Q- 4 Draw any four graphical symbols used in flowchart and explain them.
- Q- 5 What are reserved words? Why they should not be used as variable names?
- Q-6 What is data communication?
- Q- 7 What is computer security?
- Q- 8 Which of the following are valid C variables? Give the reason if not a valid variable? Area, net pay, case, else, my weight, \_age
- Q- 9 Differentiate between print f() and scan f() functions.
- Q-10 Differentiate between if and if-else selection structures.
- Q-11 Write the following statement using if-else statement.  
k = (a+b>20)? a+3\*b:a-b;



# CADET COLLEGE WANA

## MODEL PAPER MATHEMATICS FOR FIRST YEAR CLASS

Total Marks: 50

Time: 1 Hour

### SECTION A (Marks 10)

**Note.** Attempt all questions from this section.

**Q.1** Encircle the correct option from the following

- i. If  $A = \begin{bmatrix} 2 & 3 \\ 3 & 2 \end{bmatrix}$ , then  $A^{-1}$  equals
- a.  $\begin{bmatrix} 4 & 3 \\ -3 & 2 \end{bmatrix}$ ,    b.  $\begin{bmatrix} 4 & -3 \\ -3 & 2 \end{bmatrix}$ ,    (c)  $\begin{bmatrix} -2 & 3 \\ 3 & -4 \end{bmatrix}$ ,    (d)  $\begin{bmatrix} -4 & 3 \\ 3 & -2 \end{bmatrix}$
- ii. If  $\frac{u}{v} = \frac{v}{w} = k$ , then
- a.  $u = wk^2$     b.  $u = vk^2$     c.  $u = w^2k$     d.  $u = v^2k$
- iii.  $\frac{3\pi}{4}$  Radians = ----- degree
- a.  $115^\circ$     b.  $135^\circ$     c.  $150^\circ$     d.  $30^\circ$
- iv. A circle which touch the three side of a triangle internally is known as \_\_\_\_\_.
- a. Circum Circle    b. E Circle    c. In circle    d. None of These
- v. For which of the following  $a+b$  is not a factor?
- a.  $a^2 - b^2$     (b)  $a^2 + b^2$     (c)  $a^3 + b^3$     (d)  $a^4 - b^4$
- vi. The length of each side of a regular octagon is 5cm. measure its perimeters\_\_\_\_\_.
- a. 25cm    b. 30cm    c. 40cm    d. 35cm
- vii. The line  $x = a$  is parallel to \_\_\_\_\_
- a. Y-axis    b. x-axis    c. Both x-axis and y-axis    d. None
- viii. The number of elements in power set of  $\{1,2,3\}$  is \_\_\_\_\_.
- a. 8    b. 3    c. 4    d. 9
- ix. If  $A \subseteq B$  then  $A - B =$  \_\_\_\_\_.
- a. A    b. B    c.  $\emptyset$     d.  $B - A$
- x. A 4cm long chord subtends a central angle of  $60^\circ$  the radial segment of this circle is \_.
- a. 1    b. 2    c. 3    d. 4

**SECTION B (Marks 40)**

**Note: Attempt any eight questions from this section. Each question carries 5 marks.**

Q-2 If  $A = \begin{bmatrix} 2 & 0 \\ -3 & 1 \end{bmatrix}$ ,  $B = \begin{bmatrix} 1 & -1 \\ -1 & 3 \end{bmatrix}$ , Prove that  $(AB)^{-1} = B^{-1}A^{-1}$

Q-3 Verify the identity  $\sqrt{\frac{1+\cos\theta}{1-\cos\theta}} = \frac{\sin\theta}{1-\cos\theta}$

Q-4  $\overline{AB}$  is the chord of a circle and the diameter  $\overline{CD}$  is perpendicular bisector of  $\overline{AB}$ .  
Prove that  $m\overline{AC} = m\overline{BC}$

Q-5 Prove that  $x^3 + y^3 = (x+y)(x+wy)(x+w^2y)$ .

Q-6 Resolve into partial fraction  $\frac{X-5}{X^2+2X-3}$

Q-7 If  $x = 2 - \sqrt{3}$ , find the value of  $x^4 + \frac{1}{x^4}$

Q-8 Factorize:  $64x^3 - 144x^2y + 108xy^2 - 27y^3$

Q-9 Solve the equation  $3x^{-2} + 5 = 8x^{-1}$

Q-10 In a  $\Delta ABC$ , calculate  $m\overline{AC}$  when  $m\overline{AB} = 5\text{cm}$ ,  $m\overline{BC} = 4\sqrt{2}\text{cm}$ ,  $m\angle B = 45^\circ$

Q-11 Solve:-  $X^2 + 2Y^2 = 22$   
 $5X^2 + Y^2 = 29$



## CADET COLLEGE WANA

### MODEL PAPER PHYSICS FOR FIRST YEAR CLASS

Total Marks: 50

Time: 1 Hour

#### SECTION A (Marks 10)

**Note.** Attempt all questions from this section.

**Q.1** Encircle the correct option from the following

- i. Ripple tank is used to study the characteristics of
  - a. Longitudinal waves
  - b. Transverse waves
  - c. Electromagnetic waves
  - d. None of these
- ii. The intensity of the loudest sound which can be heard without pain is
  - a.  $10^{-12} \text{Wm}^{-2}$
  - b.  $1 \text{Wm}^{-2}$
  - c.  $10^{-10} \text{Wm}^{-2}$
  - d.  $10^{-6} \text{Wm}^{-2}$
- iii. The refractive index of water is
  - a. 1.03
  - b. 1.33
  - c. 1.54
  - d. 1.4
- iv. If separation between two oppositely charged object is doubled, the force of attraction between them.
  - a. Increase by 2 times
  - b. decrease by 2 times
  - c. decrease by 4 times
  - d. Increase by 4 times
- v. SI unit of emf.
  - a.  $\text{JC}^{-1}$
  - b. V
  - c.  $\Omega$
  - d. both a & b
- vi. What is the power rating of a lamp connected to a 15v source when it carries 3A
  - a. 4.8W
  - b. 60W
  - c. 135W
  - d. 45W
- vii. Ac generator works on the principle.
  - a. Ampere's law
  - b. Coulomb's law
  - c. Faraday's law
  - d. Ohm's Law
- viii. The presence of a magnetic field can be detected by:
  - a. Small mass
  - b. Stationary positive charge
  - c. Stationary negative charge
  - d. Magnetic compass
- ix. The process by which electrons are emitted by a hot metal surface is known as:
  - a. Boiling
  - b. Evaporation
  - c. Conduction
  - d. Thermionic emission
- x. What does the term e-mail stand for?
  - a. Emergency mail
  - b. Electronic mail
  - c. Extra mail
  - d. External mail

## SECTION B (Marks 40)

**Note: Attempt any eight questions from this section. Each question carries 5 marks.**

- Q.2 Can Newton's first law be derived from the Second law? Explain.
- Q- 3 Explain the phenomenon of Nuclear Fission.
- Q- 4 What is CRO? Briefly describe its components and function.
- Q- 5 How are the resistances connected in parallel? What are the characteristics of this combination? Also find equivalent resistance.
- Q- 6 Explain the construction and working of transformer.
- Q- 7 An electric bulb is marked 220V, 100W, find the resistance of the filament of the bulb. If the bulb is used 5 hours daily, find the energy in kwh consumed by bulb in one month.
- Q- 8 Describe two applications of electrostatics in daily life.
- Q- 9 A ray of light from air is incident on a liquid surface at an angle of incidence  $35^\circ$ , calculate the angle of refraction if refractive index of liquid is 1.25, Also calculate the critical angle between liquid-air interface.
- Q- 10 what are significant figures? What are rules for identification of significant figures?
- Q- 11 Define the following terms.
- i. Damped oscillation    ii. Quality of sound    iii. Pitch of sound
- iv. SHM    v. Troughs



## CADET COLLEGE WANA

### MODEL PAPER BIOLOGY FOR FIRST YEAR CLASS

Total Marks: 50

Time: 1 Hour

#### SECTION A (Marks 10)

**Note.** Attempt all questions from this section.

Q.1 Encircle the correct option from the following:

- i. Protoplasm of the nucleus is called
  - a. Nucleosome
  - b. Nucleoplasm
  - c. Nucleolus
  - d. Cytoplasm
- ii. Whorl of carpel is known as:
  - a. Thalamus
  - b. Calyx
  - c. Gynoecium
  - d. Androecium
- iii. Spherical Bacteria are also called
  - a. Spirilla
  - b. Bacillia
  - c. Cicci
  - d. Vibrios
- iv. Smut and rust are caused by the members of
  - a. Ascomycota
  - b. Basidiomycota
  - c. Zygomycota
  - d. None of these
- v. Which one of the following is dominant generation in tracheophytes?
  - a. Sporophyte
  - b. Gametophyte
  - c. Both a and b
  - d. None of these
- vi. Nucleotide is the basic unit of
  - a. Protein
  - b. Lipids
  - c. DNA
  - d. All of these
- vii. The membrane of heart is called
  - a. Perichondrian
  - b. Tonoplast
  - c. Pericardium
  - d. Chondroblast
- viii. The removal of undigested food from the body is called
  - a. Excretion
  - b. Egestion
  - c. Assimilation
  - d. Ingestion
- ix. Sudden change in the sequence of DNA molecule is called
  - a. Transduction
  - b. Transformation
  - c. Mutation
  - d. Conjugation
- x. About 90% Transpiration occur through
  - a. Leticel
  - b. stomata
  - c. Cuticle
  - d. All of these

## SECTION B (Marks 40)

**Note:** Attempt any eight questions from this section. Each question carries 5 marks.

**Draw neat and labelled diagram where necessary.**

- Q- II      What changes occur in the intercostals muscle, diaphragm during expiration and inspiration?
- Q- III      Write note on diarrhea and constipation.
- Q- IV      Classify the fishes and write their characters.
- Q- V      Define the following:
- Parasite
  - Plasmid
  - Radial symmetry
  - Actinomorphic flower
  - Metameric Segmentation
- Q- VI      Describe Translocation in plants.
- Q- VII      Differentiate between colorblindness and hemophilia.
- Q- VIII      Describe the function of different parts of forebrain.
- Q- IX      what is the difference between flexor and Extensor.
- Q- X      Describe the human blood groups.
- Q- XI      Briefly discuss female reproductive system in Frog.



# CADET COLLEGE WANA

## MODEL PAPER ENGLISH CUM URDU FOR FIRST YEAR CLASS

Total Marks: 50

Time: 1 Hour

### **SECTION ENGLISH (Marks 25)**

**Note.** Attempt all questions from this section.

Q.I Write an essay on any one of the following? 10

- i. A memorable day in my life      ii. My favorite personality

Q. II Use the following pair of words in your own words? 10

- i. Idol – Idle      ii. Peace – Piece      iii. Marry – Merry

- iv. Storey – Story      v. Dose – Doze

Q. III Translate into English 05

- (1) وہ صبح سے اخبار پڑھ رہے ہیں  
(2) ہم میچ جیت چکے ہیں  
(3) ایک ہاتھ سے نالی نہیں بجاتی  
(4) بُری صحبت سے آدمی اکیلا ہی بھلا  
(5) دوست وہ جو مصیبت میں کام آئے

### **SECTION URDU (Marks 25)**

سوال نمبر 1- دیے گئے الفاظ و محاورات کو جملوں میں استعمال کریں۔ 05

آپے سے باہر ہونا۔ آسمان سر پر اُٹھانا۔ چرکا لگانا۔ وفا کرنا۔ آب آب ہونا

سوال نمبر 2- الف۔ اسم علم کسے کہتے ہیں؟ اسم علم کی کوئی سی دو اقسام کی تعریف نیز مثالیں لکھیں۔ 05

ب۔ فعل لازم اور فعل متعدی کی تعریف نیز مثالیں لکھیں۔ 05

سوال نمبر 3- محکمہ برقیات کے مجاز آفیسر کے نام درخواست لکھیں جس میں لوڈشیڈنگ کی شکایت کی گئی ہو۔ 10