



**CADET COLLEGE WANA**

**01 August 2021**

**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. The most important organelle in bacterial cell other than DNA is;
  - a. Mesosome
  - b. Ribosome
  - c. Lysosomes
  - d. Nucleosomes
- ii. Human lungs are spongy due to the presence of;
  - a. Bronchi
  - b. Bronchiols
  - c. Alveoli
  - d. Capillaries
- iii. Biologists use observation to develop possible answers to biological problems are \_\_\_\_\_.
  - a. Observation
  - b. Hypothesis
  - c. Experiment
  - d. Deduction
- iv. Vestibule is present in the \_\_\_\_\_.
  - a. Middle ear
  - b. Inner ear
  - c. Outer ear
  - d. All of these
- v. In hypogeal germination elongates \_\_\_\_\_.
  - a. Hypocotyle
  - b. Epicotyle
  - c. Cotyledon
  - d. Both A & B
- vi. From which bond of ATP molecule energy is taken?
  - a. P-P bond
  - b. C-N bond
  - c. C-H bond
  - d. C-O bond
- vii. The respiratory centre is sensitive to the concentration of \_\_\_\_\_ in blood.
  - a. CO<sub>2</sub>
  - b. O<sub>2</sub>
  - c. N<sub>2</sub>
  - d. All of these
- viii. Which part of brain is responsible for thinking, intelligence and emotions?
  - a. Cerebrum
  - b. Cerebellum
  - c. Thalamus
  - d. Hypothalamus
- ix. Plants use Nitrogen in the form of \_\_\_\_\_.
  - a. Nitrites
  - b. Ammonia
  - c. Nitrates
  - d. Nitrogen gas
- x. The complete loss of function by one or more muscle groups is called
  - a. Epilepsy
  - b. Muscles damage
  - c. Paralysis
  - d. Sciatica



# Biology

## 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 Describe the osmotic adjustment in xerophytes.
- Q- 3 What is binomial nomenclature?
- Q- 4 Describe the basic steps of genetic engineering.
- Q- 5 Briefly describe the antagonistic function of muscle.
- Q- 6 Define cell cycle and explain its phases.
- Q- 7 Define circulatory system of human. Draw and label structure of human heart.
- Q- 8 differentiate between the following.
- Endo-cytosis and Exo-cytosis.
  - Simple tissue and compound tissue
- Q- 9 How "PH" of a cell affects the activity of enzyme?
- Q- 10 Differentiate between atherosclerosis and arteriosclerosis?
- Q- 11 Describe the following terms:
- Nitrogen Fixation
  - Nitrification





**CADET COLLEGE WANA**

**01 August 2021**

**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
- Shielding effect in periods \_\_\_\_\_
    - Increases
    - Decreases
    - Remains constant
    - None of These
  - Highest ionization energy is of
    - H
    - He
    - Na
    - K
  - What is the mass of carbon present in 44g of  $\text{CO}_2$ 
    - 12g
    - 6g
    - 24g
    - 44g
  - Nelson cell is used to prepare
    - Na metal
    - NaOH
    - $\text{NaHCO}_3$
    - $\text{NH}_3$
  - Reduction always takes place at \_\_\_\_\_
    - Anode
    - Cathode
    - Both A&B
    - None of these
  - Oxidation state of Mn in  $\text{KMnO}_4$  is
    - +1
    - +7
    - 2
    - 6
  - Which one of the following is lewise Acid
    - $\text{BF}_3$
    - $\text{NH}_3$
    - $\text{H}_2\text{O}$
    - HCl
  - Chemical formula of ammonium carbamate is
    - $\text{NH}_2\text{CO NH}_2$
    - $\text{NH}_2\text{COONH}_4$
    - $\text{NH}_2\text{COONH}_2$
    - $\text{NH}_3\text{COONH}_3$
  - Permanent hardness of water is due to
    - $\text{Na}_2\text{SO}_4$
    - $\text{CaSO}_4$
    - $\text{Ca}(\text{HCO}_3)_2$
    - $\text{NaHCO}_3$
  - Formic Acid contains functional group
    - OH
    - CO-
    - COOH
    - CHO

*Chemistry*  
**SECTION-B (Marks=40)**

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

- Q- 2 Briefly explain the mechanism of acid rain.
- Q- 3 How can Ozone depletion cause global warming? Explain
- Q- 4 Explain why hard water is not suitable for use of our daily life activities.
- Q- 5 Define mole and Avogadro's number. Calculate the no of molecules in 36g Ice cube?
- Q- 6 Sketch the neat and labelled diagram of the Daniel cell.
- Q-7 State Charles's law. Prove that  $\frac{V_1}{T_1} = \frac{V_2}{T_2}$
- Q- 8 What is hydrogen bond? Discuss hydrogen bonding in H<sub>2</sub>O and HF.
- Q- 9 Why H<sub>2</sub>O acts as a bronsted-lowery acid as well as a base. Justify your answer by giving suitable chemical reactions.
- Q- 10 Draw and explain flow sheet diagram of Solvay's process.
- Q- 11 Explain methods of removing permanent hardness of water.





**CADET COLLEGE WANA**

**01 August 2021**

**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. Where is columbia supercomputer located?  
a. NASA Russia                      b. NASA USA                      c. NASA China                      d. NASA Italy
- ii. Which of the following is the exclusive legal right that prohibits copying of intellectual property?  
a. Legal Right                      b. Book Right                      c. Copy Right                      d. All Right
- iii. Which of the following is a sequence of instructions written in computer language to solve a problem?  
a. Program                      b. Algorithm                      c. Flowchart                      d. Problem Analysis
- iv. Which program translates high level language into machine language?  
a. Loader                      b. Linker                      c. compiler                      d. Debugger
- v. Which of the following is an arithmetic operator?  
a. &&                      b. %                      c. +=                      d. < =
- vi. Which of the following gates are also known as inverter?  
a. OR Gate                      b. NOT Gate                      c. NOR Gate                      d. NAND Gate
- vii. In which network topology all nodes are connected to a common communication medium or central cable?  
a. Bus                      b. Ring                      c. Star                      d. Mesh
- viii. Which symbol is used for processing in flowchart?  
a. Rectangle                      b. Parallelogram                      c. Diamond                      d. Oval
- ix. Which character terminates a C statement?  
a. Colon                      b. Semi Colon                      c. Perid                      d. comma
- x. Which loop is used when it is required to execute the loop at least once?  
a. for loop                      b. while loop                      c. do-while loop                      d. nested loop



# Computer Science

## 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 What is the difference b/w software engineer and hardware engineer?
- Q-3 Differentiate b/w guided and unguided media with its types.
- Q-4 What are the advantages of using flowcharts?
- Q-5 Write a C program that reads three numbers and prints their sum, product and average.
- Q-6 Differentiate b/w "while loop" and "do while loop".
- Q-7 What is batch processing operating system?
- Q-8 Write note on client and server network.
- Q-9 What is cybercrime?
- Q-10 Differentiate between high level languages and low level languages.
- Q-11 What is if-else statement? Draw and explain its structure.



**CADET COLLEGE WANA**

**01 August 2021**

**PAPER ENGLISH / URDU FOR FIRST YEAR CLASS**

**Total Marks: 50**

**Time: 1 Hour**

**SECTION ENGLISH (Marks=25)**

- Q.1 Write an essay on any one of the following. 10  
i. Student's role in nation's building  
ii. Causes and effects of pollution on environment
- Q.2 Use the following pair of words in your own sentences? 10  
i. Loose, Lose ii. Affect, Effect iii. Pray, Prey  
iv. Diary, Dairy v. Lesson, Lessen
- Q.3 Translate into English 05

(1) میں صبح سے آپ کا انتظار کر رہا تھا۔

(2) جس کی لاشی اس کی بھینس۔

(3) چلتی کا نام گاڑی ہے۔

(4) انہوں نے اپنا کام مکمل کیوں نہیں کیا ہے؟

(5) پولیس نے ہجوم کو منتشر کیا۔

**SECTION URDU (Marks=25)**

- 05 سوال نمبر 1۔ دیے گئے الفاظ و محاورات کو جملوں میں استعمال کریں۔  
خاطر میں نہ لانا۔ دل آئینہ ہونا۔ عقل دنگ ہونا۔ تھرا اٹھنا۔ مرجع
- 05 سوال نمبر 2۔ الف۔ مرکب ناقص اور مرکب نام کی وضاحت کریں نیز مرکب ناقص کی اقسام بیان کریں۔  
ب۔ اسم جامد اور اسم مشتق کی تعریف کریں نیز مثالیں لکھیں۔
- 10 سوال نمبر 3۔ اپنے چھوٹے بھائی کو خط لکھیں جس میں اسے کوورونا SOPs پر عمل کرنے کی ہدایت کریں۔





**CADET COLLEGE WANA**

**01 August 2021**

**PAPER MATHS 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. L.C.M of  $a^2 - a + 1$  and  $a^3 + 1$  is \_\_\_\_\_.
- a.  $a + 1$       b.  $a^2 - a + 1$       c.  $a^3 + 1$       d.  $a^2 + a + 1$
- ii. The solution set of  $\left|\frac{5x}{3}\right| = 5$  is \_\_\_\_\_.
- a.  $\{\pm 3\}$       b.  $\{5, -5\}$       c.  $\{4, -4\}$       d.  $\{-4\}$
- iii.  $\frac{1}{1+\sin\theta} + \frac{1}{1-\sin\theta} =$  \_\_\_\_\_.
- a.  $2 \sec^2\theta$       b.  $2 \cos^2\theta$       c.  $\sec^2\theta$       d.  $\cos\theta$
- iv. If  $3i(2+5i) = x + 6i$  then  $x =$  \_\_\_\_\_.
- a. 5      b. -15      c.  $5i$       d.  $15i$
- v. In a circle, two chords are equally distant from the centre of the circle the chords are \_\_\_\_\_.
- a. Congruent      b. None congruent      c. Parallel      d. Non parallel
- vi.  $(4xy^4)^3 =$  \_\_\_\_\_.
- a.  $64x^3y^8$       b.  $64x^3y^6$       c.  $64x^3y^{12}$       d.  $64x^3y^7$
- vii. In a ratio  $x:y$ ,  $y$  is called \_\_\_\_\_.
- a. Relation      b. Antecedent      c. Consequent      d. None of these
- viii. If  $\tan\theta = \sqrt{3}$ , then  $\theta$  is equal to \_\_\_\_\_.
- a.  $90^\circ$       b.  $45^\circ$       c.  $60^\circ$       d.  $30^\circ$
- ix. If  $A \subseteq B$ , then  $A \cap B$  is equal to \_\_\_\_\_.
- a. A      b. B      c.  $\emptyset$       d. None
- x. An equation of the type  $3^x + 3^{2-x} + 6 = 0$
- a. Exponential Equation      b. Radical Equation
- c. Reciprocal Equation      d. None of these



## SECTION-B (Marks=40)

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

Q-2 Solve the following system of linear equation using inversion method.

$$x+2y = -13, 3x+6y = 11$$

Q-3 Verify the identity,  $\frac{1+\cos\theta}{\sin\theta} + \frac{\sin\theta}{1+\cos\theta} = 2 \operatorname{Cosec}\theta$

Q-4 Find the value of

$$\frac{s-3p}{s+3p} + \frac{s+3p}{s-3p}, \text{ if } S = \frac{6pq}{p-q}$$

Q-5 Factorize :  $(x+1)(x+2)(x+3)(x+6) - 3x^2$

Q-6 The difference of a number and its reciprocal is  $\frac{15}{4}$ . Find the numbers.

Q-7 Using theorem of componendo - dividendo

$$\text{Solve } \frac{(x-2)^2 - (x-4)^2}{(x-2)^2 + (x-4)^2} = \frac{12}{13}$$

Q-8 Solve:  $x^{2/3} + 54 = 15x^{1/3}$

Q-9 Calculate the length of a chord which stands at a distance 5cm from the center of a circle whose radius is 9 cm.

Q-10 Prove the trigonometric identity

$$(\cos\theta - \sin\theta)^2 = 1 - 2 \cos\theta \cdot \sin\theta$$

Q-11 Evaluate;  $(1+3w-w^2)(1+w-2w^2)$





**CADET COLLEGE WANA**

**01 August 2021**

**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. How does sound travel from its source to your ear.
  - a. By changing air pressure
  - b. By vibration in wire or strings
  - c. By electromagnetic wave
  - d. By infrared wave
- ii. An electric current in conductor is due to the flow of
  - a. +ve ions
  - b. -ve ions
  - c. Free electron
  - d. +ve charge
- iii. Pressure at depth in fluid \_\_\_\_\_.
  - a. Increases
  - b. Decreases
  - c. Stays the same
  - d. None
- iv. The value of "g" at equator is \_\_\_\_\_.
  - a. Same as at poles
  - b. Larger than at poles
  - c. Smaller than at poles
  - d. None
- v. Capacitance is defined as \_\_\_\_\_.
  - a. VC
  - b.  $Q/V$
  - c. QV
  - d.  $V/Q$
- vi. The distance cover by a car in time "t" starting from rest.
  - a. vt
  - b. Zero
  - c.  $\frac{1}{2}gt^2$
  - d. 2 as
- vii. When horse pulls a cart, the action is on the \_\_\_\_\_.
  - a. Cart
  - b. Earth
  - c. Horse
  - d. Earth & Cart
- viii. If the length of a simple pendulum is halve, then its time period will become .
  - a.  $T/2$
  - b.  $T/\sqrt{2}$
  - c.  $\sqrt{2}T$
  - d. 2T
- ix. Slope of work time graph is equal to
  - a. Displacement
  - b. Acceleration
  - c. Power
  - d. Energy
- x. An electric charge at rest produces
  - a. Only magnetic field
  - b. Only an electric field
  - c. Neither electric nor magnetic field
  - d. Both electric and magnetic field



# Physics

## SECTION-B (Marks=40)

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

Q.2 Explain why?

- a. Land breeze blows from land towards sea.
- b. Deserts soon get hot during the day and soon get cool after sunset.

Q- 3 Explain how the value of 'g' varies with altitude.

Q- 4 What is barometer? Why water is not suitable to use in barometer?

Q- 5 Define the following.

- a. Physics      b. momentum      c. Torque      d. Work      e. Power

Q- 6 Discuss the main features of parallel combination of resistors.

Q- 7 State and explain ohm's law. What are its limitations?

Q- 8 Define moment of a force. Give its mathematical description and elaborate the factors on which its depends.

Q- 9 Explain coulomb's law of electrostatics and write its mathematical form.

Q- 10 If the length of a simple pendulum is doubled, what will be the change in its time period?

Q- 11 What is hook's law? What is meant by elastic limit?



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**PAPER BIOLOGY FOR CLASS 11<sup>th</sup> 24 June 2023**

**Total Marks: 50**

**Time: 1 Hour**

**SECTION-A (Marks = 10)**

**Note.** Attempt all questions from this section. Write the correct answers on the answer sheet provided.

- Q.1** Encircle the correct option from the following.
- i. Respiration at cellular level is also known as:
    - a. Breathing
    - b. Ventilation
    - c. Oxidation
    - d. All of these
  - ii. The largest part of the brain is:
    - a. cerebrum
    - b. cerebellum
    - c. Thalamus
    - d. Medulla oblongata
  - iii. Which of the following is not part of the axial skeleton?
    - a. sternum
    - b. pectoral girdle
    - c. Skull
    - d. vertebrae
  - iv. In parthenogenesis a new animal develops from?
    - a. Fertilized egg
    - b. unfertilized egg
    - c. sperm
    - d. Budding
  - v. Which of these can be used as a vector for inserting a gene into bacteria?
    - a. plasmid
    - b. Algae
    - c. yeast
    - d. E.Coli
  - vi. Interferons are chemicals which are used to:-
    - a. kill virus
    - b. improve immunity
    - c. work as vaccine
    - d. All of the above
  - vii. The central dogma is best represented by :-
    - a. DNA+RNA = Protein
    - b. DNA → RNA + Protein
    - c. DNA → RNA → Protein
    - d. Protein → RNA → DNA
  - viii. Which connective tissue attaches two bones at a Joint?
    - a. ligament
    - b. Tendon
    - c. cartilage
    - d. Marrow
  - ix. The digestive Enzyme pepsin secreted by gastric glands begins the digestion of:-
    - a. Carbohydrates
    - b. Protein
    - c. Fats
    - d. Vitamins
  - x. Trypsin, an enzyme, works at:-
    - a. Alkaline
    - b. Acidic PH
    - c. neutral PH
    - d. PH does not affect its activity



**CADET COLLEGE WANA**

**PAPER BIOLOGY FOR CLASS 11<sup>th</sup> 24 June 2023**

**SECTION-B (Marks=40)**

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

- Q- 2 Explain the role of bioelements in living organism.
- Q- 3 How human activities affect the biodiversity of an area?
- Q- 4 Briefly discuss the significance of Mitosis.
- Q- 5 Describe alternation of generation in flowering plants.
- Q- 6 Differentiate between food chain and food web with example.
- Q- 7 List down the endangered species of Pakistan and what are the reasons behind their population decrease?
- Q- 8 How do kidneys control the composition of blood?
- Q- 9 Describe the function of three major types of Joints and give an example of each.
- Q- 10 How is artificial selection used for the improvement of crops?
- Q- 11 Briefly describe the causes, symptoms and treatment of Asthma.



CADET COLLEGE WANA

PAPER CHEMISTRY FOR CLASS 11<sup>th</sup> 24 June 2023

Total Marks: 50

Time: 1 Hour

SECTION - A (Marks = 10)

Note. Attempt all questions from this section. Write the correct answers on the answer sheet provided.

Q.1 Encircle the correct option from the following

- i. Aqueous saturated solution of sodium chloride is called
  - a. Brine
  - b. Ammonical Brine
  - c. Caustic Soda
  - d. None of these
- ii. Which of the following has lowest ionization energy?
  - a. K
  - b. Na
  - c. He
  - d. H
- iii. When sodium react with chlorine it produces NaCl. In this reaction chlorine is .
  - a. Oxidized
  - b. Reduced
  - c. Remains unchanged
  - d. All of them
- iv. In which of the following does sulphur have an oxidation number of +7?
  - a.  $\text{HSO}_4^-$
  - b.  $\text{SO}_3$
  - c.  $\text{H}_2\text{SO}_4$
  - d.  $\text{H}_2\text{S}_2\text{O}_8$
- v. Which of the following decolourises  $\text{Br}_2$  water ?
  - a. Ethane
  - b. Ethene
  - c. Propane
  - d. Methane
- vi. Ethylene react with dilute solution of  $\text{KMnO}_4$  to produce ethylene glycol. The reaction is called.
  - a. tollen's test
  - b. Baeyer's test
  - c. Silver mirror test
  - d. both a & b
- vii. Deficiency of vitamin A causes
  - a. Scurvy
  - b. Rickets
  - c. Night blindness
  - d. Aging
- viii. Chemical formula of urea is
  - a.  $\text{NH}_3\text{CONH}_3$
  - b.  $\text{NH}_2\text{COONH}_4$
  - c.  $\text{NH}_2\text{COONH}_2$
  - d.  $\text{NH}_2\text{CO NH}_2$
- ix. Temporary hardness of water is due to
  - a.  $\text{Na}_2\text{SO}_4$
  - b.  $\text{CaSO}_4$
  - c.  $\text{Ca}(\text{HCO}_3)_2$
  - d.  $\text{NaHCO}_3$
- x. Acetic Acid contains functional group
  - a.  $-\text{OH}$
  - b.  $-\text{CO}-$
  - c.  $-\text{COOH}$
  - d.  $-\text{CHO}$



**PAPER CHEMISTRY FOR CLASS 11<sup>th</sup> 24 June 2023**

**SECTION-B (Marks = 40)**

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

- Q- 2 Explain briefly why ionization potential decreases down the group while increases from left to right along periods in periodic table.
- Q- 3 Complete and balance the following chemical equations:-
- $\text{NH}_3 + \text{O}_2 \rightarrow ?$
  - $\text{HCl} + \text{KOH} \rightarrow ?$
  - $\text{CH}_2 = \text{CH}_2 + \text{HCl} \rightarrow ?$
  - $\text{C} + \text{H}_2\text{O} \rightarrow ?$
  - $\text{Cl}_2 + \text{H}_2\text{O} \rightarrow ?$
- Q- 4 Define solubility? Discuss briefly the effect of various factors affecting solubility.
- Q- 5 What is acid rain? Explain briefly the adverse effects of acid rain.
- Q- 6 Write down the electronic configuration of the following elements:-  
N-7 , Na-11 , Si-14 , S-16 , Ar-18
- Q-7 Draw the flow sheet diagram of Solvay's process.
- Q- 8 Define PH ? Prove that  $\text{PH} + \text{POH} = 14$ .
- Q- 9 Why  $\text{H}_2\text{O}$  acts as a bronted-lowery acid as well as a base. Justify your answer by giving suitable chemical reactions.
- Q- 10 Draw the structural formula of the following compounds:-  
2-Butene, 2,3,4-Trimethyl-3-hexene , Acetylene , Ethylene , 1,2-ethanediol
- Q- 11 Define water pollution? Discuss briefly waterborn diseases.



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PAPER COMPUTER FOR CLASS 11<sup>th</sup> 24 June 2023

Total Marks: 50

Time: 1 Hour

Note. Attempt all questions from this section. Write the correct answers on the answer sheet provided.

Q No. 1 Encircle the correct option from the following.

- i. Which computer is a combination of digital and analog technologies?
  - a. Hybrid
  - b. Super
  - c. Mini
  - d. Mainframe
- ii. Which of the following operating system allows a user to run multiple programs at any given time?
  - a. Single user
  - b. Multi user
  - c. Multitasking
  - d. Real time
- iii. The basic unit for entering data in Excel is:
  - a. Row
  - b. Column
  - c. Cell
  - d. Formula
- iv. The row in Excel are denoted by:
  - a. Letters
  - b. Numbers
  - c. Words
  - d. Sign
- v. Internet is the example of which type of network?
  - a. LAN
  - b. WAN
  - c. MAN
  - d. Both b and c
- vi. In C language every statement is terminated by:
  - a. Full stop
  - b. Double quotes
  - c. Comma
  - d. Semicolon
- vii. A types of operator that works with single operator:
  - a. Unary operator
  - b. Binary operator
  - c. Ternary operator
  - d. None of these
- viii. Which of the following is postfix increment operator?
  - a. c++
  - b. ++c
  - c. --c
  - d. c--
- ix. Which statement is used to move the control to the start of loop body?
  - a. continue
  - b. break
  - c. exit
  - d. none of these
- x. The gate whose output is '0' when all the inputs are same is called?
  - a. AND gate
  - b. NOR gate
  - c. XOR gate
  - d. XNOR gate



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**PAPER COMPUTER FOR CLASS 11<sup>th</sup> 24 June 2023**

**Section B (40 Marks)**

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

- Q No. 2 Differentiate between shareware and freeware.
- Q No. 3 What is the use of hyperlink in a word document?
- Q No. 4 Differentiate between Ring topology and Mesh topology.
- Q No. 5 Differentiate between Analog signal and Digital signal.
- Q No. 6 What is computer security?
- Q No. 7 Draw a flowchart to print even numbers from 50 to 100.
- Q No. 8 Write down rules for writing variable names.
- Q No. 9 Write a program to find the smallest number of three numbers using if-else statement?
- Q No. 10 What is for loop? Write and explain its general syntax?
- Q No. 11 What is NAND gate? Write down its truth table also draw its block diagram.
- Q No. 12 Describe the following HTML tags.

i. Paragraph

ii. Heading

iii. Center



**CADET COLLEGE WANA**

**PAPER ENGLISH/ URDU FOR CLASS 11<sup>th</sup> 24 June 2023**

**Total Marks: 50**

**Time: 1 Hour**

**SECTION ENGLISH (Marks = 25)**

- Q.1 Write an essay on any one of the following. 10
- Self - Discipline and its importance
  - Importance of National Integration
- Q.2 Use the following pair of words in your own sentences? 10
- Urbane, Urban
  - Stationary, Stationery
  - Canvas, Canvass
  - Bear, Bare
  - illegible, eligible
- Q.3 Change the voice of the following sentences. 05
- The guard will have locked the gates by 2 P.M.
  - Why did you not tell me this?
  - Drink juice.
  - I shall draw a labeled diagram.
  - We shall do home work in time.

**SECTION URDU (Marks = 25)**

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

رخنہ ڈالنا، نمک چھڑکنا، اپنا الو سیدھا کرنا، شیر و شکر ہونا، اُلٹے پاؤں پھرنا

سوال نمبر 2- الف۔ جملہ انشائیہ اور جملہ خبریہ کی تعریف کریں اور نیز مثالیں دے کر فرق واضح کریں۔ 05

ب۔ قصیدہ اور مثنوی کی تعریف کریں اور مثالیں پیش کریں۔ 05

سوال نمبر 3- اپنے بھائی کو خط لکھیں جس میں اسے ماحولیاتی آلودگی کے نقصانات سے بچنے کی تدبیر سے آگاہ کریں۔ 10



**CADET COLLEGE WANA**

**PAPER MATHS FOR CLASS 11<sup>th</sup> 24 June 2023**

Total Marks: 50

Time: 1 Hour

**SECTION-A (Marks=10)**

**Note.** Attempt all questions from this section. Write the correct answers on the answer sheet provided.

Q.1 Encircle the correct option from the following

- i. A value of 'x' from which  $p(x)=0$ , is called \_\_\_\_\_ of the  $p(x)$ .  
a. root                      b. solution                      c. zero                      d. All of these
- ii. A \_\_\_\_\_ is a quadrilateral in which all sides are congruent.  
a. square                      b. rectangle                      c. Parallelogram                      d. Rhombus
- iii. In a circle, two chords are equally distant from the centre of the circle, the chords are:-  
a. Congruent                      b. not congruent                      c. Parallel                      d. not parallel
- iv. The measure of the external angle of a regular hexagon is :-  
a.  $\frac{\pi}{3}$                       b.  $\frac{\pi}{4}$                       c.  $\frac{\pi}{6}$                       d.  $\frac{\pi}{2}$
- v. If  $A = \{ a, b \}$ ,  $B = \{ 1, 2 \}$ , then the number of all possible subset of  $A \times B$  is:-  
a. 8                      b. 4                      c. 12                      d. 16
- vi. A chord is 5 cm from the center of circle of radius 13 cm. the length of chord is \_\_\_:-  
a. 6cm                      b. 12cm                      c. 24cm                      d. 30cm
- vii. The  $n^{\text{th}}$  root of product of 'n' number of values is called \_\_\_\_\_.  
a. Arithmetic mean                      b. Geometric mean  
c. Harmonic mean                      d. None of these
- viii. If  $\alpha$  and  $\beta$  are the roots of  $4x^2 - 3x + 7 = 0$ , then the value of  $\frac{1}{\alpha} + \frac{1}{\beta} =$  \_\_\_\_\_.  
a.  $\frac{-3}{4}$                       b.  $\frac{3}{7}$                       c.  $\frac{-3}{7}$                       d.  $\frac{4}{7}$
- ix.  $\text{Log}_9 \frac{1}{81} = ?$   
a. -1                      b. -2                      c. 2                      d. does not exist
- x. The point having its co-ordinates (0,0) is called:-  
a. Abscissa                      b. ordinate                      c. origin                      d. critical point



**CADET COLLEGE WANA**

**PAPER MATHS FOR CLASS 11<sup>th</sup> 24 June 2023**

**Total Marks: 50**

**Time: 1 Hour**

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**SECTION-B (Marks=40)**

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

Q-2 Solve the simultaneous equation by using graphical method,  $3x+5y = 2$  ,  $3x + 5y = 8$

Q-3 If  $\alpha$  and  $\beta$  are the roots of  $2x^2+3x +1=0$ . , then find the values of  $\frac{\alpha^2+\beta^2}{\beta} + \frac{\beta^2}{\alpha}$

Q-4 Prove that  $(\sec x - \tan x)^2 = \frac{1-\sin x}{1+\sin x}$

Q-5 The area of a rectangle is 252 square meters . the length of its side is 9 meters longer than its width. Find its sides.

Q-6 Inscribe a regular hexagon in a circle of radius 4cm.

Q-7 Solve  $8(x^2 + \frac{1}{x^2}) - 42(x - \frac{1}{x}) + 29 = 0$

Q-8 If  $x = \{1, 2, 3, 4\}$  and  $y = \{5, 6, 7, 8\}$  then write.

- i. a function from x to y.
- ii. a 1-1 function from x to y.
- iii. Bijective function from y to x.

Q-9 Using Apollonius theorem find the length of the medians of a triangle having sides 10cm , 12 cm and 16 cm respectively.

Q-10 For what value of 'K' the expression  $4x^4+32x^2+96+\frac{128}{x^2} + \frac{K}{x^4}$  will become a perfect square.

Q-11 The measure of the three angles of a triangle are in the ratio 2:3:4. Find the measure of the largest angle?



**CADET COLLEGE WANA**  
**PAPER PHYSICS FOR CLASS 11<sup>th</sup> 24 June 2023**

Total Marks: 50

Time: 1 Hour

**SECTION-A (Marks=10)**

**Note.** Attempt all questions from this section. Write the correct answers on the answer sheet provided.

- Q.1 Encircle the correct option from the following:
- i. Floppy disc is made of flexible plastic, which is coated with \_\_\_\_\_ compounds.  
a. Diamagnetic      b. paramagnetic      c. Ferromagnetic      d. None
  - ii. The electric devices in the artificial satellite are controlled from earth station with the help of \_\_\_\_\_.  
a. current                      b. electrical power  
c. computer                      d. electromagnetic waves
  - iii. Gastroscope is an instrument to view the \_\_\_\_\_.  
a. heart                      b. lungs                      c. stomach                      d. liver
  - iv. A light year is distance traveled by light in one year, it travels about  $9.460 \times 10^{15}$  m. How many significant figures are in this number \_\_\_\_\_?  
a. 15                      b. 3                      c. 4                      d. 18
  - v. The relative velocity of geostationary satellite with respect to earth is.  
a.  $7.9 \text{ kms}^{-1}$                       b.  $11.2 \text{ kms}^{-1}$                       c.  $9.8 \text{ ms}^{-1}$                       d.  $0 \text{ kms}^{-1}$
  - vi. \_\_\_\_\_ is used for curing cancerous tumors and cells.  
a. Sulphur-32                      b. Cobalt-60                      c. Uranium-238                      d. Polonium-121
  - vii. The device which converts mechanical energy into electrical energy is \_\_\_\_\_.  
a. motor                      b. generator                      c. battery                      d. thermocouple
  - viii. If the length of a simple pendulum is halved, its time period will become:-  
a.  $\frac{T}{2}$                       b.  $\frac{T}{\sqrt{2}}$                       c.  $\sqrt{2}T$                       d.  $2T$
  - ix. A car is going backwards at  $5 \text{ ms}^{-1}$ . After 10 s of uniform acceleration the car is going forward at  $10 \text{ ms}^{-1}$ . The acceleration is \_\_\_\_\_.  
a.  $0.5 \text{ ms}^{-2}$                       b.  $0.75 \text{ ms}^{-2}$                       c.  $1.5 \text{ ms}^{-2}$                       d.  $5 \text{ ms}^{-2}$
  - x. For making cooking utensils, which of the following pairs of properties are most suited.  
a. high specific heat and high conductivity  
b. low specific heat and low conductivity  
c. high specific heat and low conductivity  
d. low specific heat and high conductivity



## CADET COLLEGE WANA

### PAPER PHYSICS FOR CLASS 11<sup>th</sup> 24 June 2023

#### SECTION-B (Marks=40)

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

- Q-2 Differentiate between renewable and non renewable energy source with two examples each?
- Q-3 Write note on; (i) Banking of roads. (ii) skidding of vehicles.
- Q-4 A ball is dropped from a certain height on to the floor and keeps bouncing is the motion of ball simple harmonic ? Explain.
- Q-5 A capacitor holds 0.06C of charge when fully charged by a 6 volt battery. Calculate capacitance of capacitor?
- Q-6 Define the following terms.
- i. Momentum      ii. Power      iii. Killo-watt-hour
- iv. Frequency      v. Amplitude
- Q-7 What is meant by resolution of force? Find the two rectangular components of a force of 100N which is acting at an angle of  $60^\circ$  with x-axis.
- Q-8 Two capacitors of capacitance 2PF amd 3PF , are connected in parallel to 9 volt battery , calculate the equivalent capacitance and the charge on each capacitor?
- Q-9 Define sound. What is the speed of the sound in air at  $-20\text{ C}^\circ$  ?
- Q-10 Define equilibrium. What is the difference between translational and rotational equilibrium?
- Q-11 What is transformer? Explain the working of a transformer in connection with mutual Induction.



*Cadet College Wana (SWTD)*

Class 11<sup>th</sup> (Special Entry Test 2024)

Paper Biology

Time Allowed: 1 hr

Section -A ( Marks : 10)

Total Marks: 50

**Q No. 1:- Encircle the correct option.**

- I. An angiosperm has two different alleles for a single trait. Its genotype is called.  
a. Homozygous    b. Heterozygous    c. Hemizygous    d. Homologous
- II. The three R<sub>s</sub> responsible for the better environment are.  
a. Reduce, Reuse, Recycle    b. Random, Reduce, Recall  
c. Read, Register, Recall    d. Reduce, Rebuild, restrict
- III. If  $2n=8$  for a cell, then the chromosome number in egg cell after meiosis would be.  
a. 12    b. 10    c. 8    d. 4
- IV. Types of blood vessels that surround the alveoli.  
a. Artery    b. Arteriole    c. Capillary    d. Vein
- V. Genes are short segment of.  
a. DNA    b. Protein    c. Lipid    d. Carbohydrate
- VI. The point where muscles are attached to the bone.  
a. Tendon    b. Ligament    c. Origion    d. Insertion
- VII. Phenotype is the expression of \_\_\_\_\_.  
a. Genetic makeup    b. Chemical Composition  
c. Physical makeup    d. Metabolism
- VIII. Process that carries away nerve impulses from cell body is \_\_\_\_\_.  
a. Axons    b. Dendrites    c. Synapses    d. Myelin Sheath
- IX. Natural selection operates to produce changes in.  
a. Individuals    b. Populations    c. Races    d. Phyla
- X. Liver plays a role in excretion. It makes urea from.  
a. Uric Acid    b. Ammonia    c. Carbon dioxide    d. Amino Acid



***Cadet College Wana (SWTD)***

**Class 11<sup>th</sup> (Special Entry Test 2024)**

**Paper Biology**

**Section –B (Marks: 40)**

**Note: Attempt any 8 questions of the following. Each question carries 5 marks.**

- Q No:2.** Differentiate between emphysema and asthma.
- Q No:3** What is the composition of cell wall in plants , fungi and bacteria?
- Q No:4** Why Homeostasis is necessary for living organisms?
- Q No:5** What is the main difference between Anaphase-I and Anaphase-II of Meiosis?
- Q No:6** Draw and explain the structure of Nephron.
- Q No:7** Why pituitary gland is known as Master Gland? Give an example.
- Q No:8** How does turgor pressure develop in a plant cell?
- Q No:9** What are the waste materials removed by coniferous trees, rubber plant and lady finger?
- Q No:10** What are the differences between dominant and recessive alleles?
- Q No:11** Write any five general characteristics of Enzymes?



Q No. 1:- Encircle the correct option.

- I.  $\sqrt{-(-9)^2} = ?$   
 a. 9                                      b.  $9i$                                       c. -9                                      d.  $-9i$
- II. LCM of  $a^2+a+1$  and  $a^3+1$  is \_\_\_\_\_.  
 a.  $a+1$                                       b.  $a^2-a+1$                                       c.  $a^3+1$                                       d.  $a^2-1$
- III. If a and b are roots of  $4x^2+3x+7=0$  then the value of  $\frac{1}{a} + \frac{1}{b}$  is \_\_\_\_\_.  
 a.  $\frac{-3}{4}$                                       b.  $\frac{3}{7}$                                       c.  $\frac{-3}{7}$                                       d.  $\frac{4}{7}$
- IV.  $1 + \tan^2\theta =$  \_\_\_\_\_.  
 a.  $\sin^2\theta$                                       b.  $\cos^2\theta$                                       c.  $\operatorname{Cosec}^2\theta$                                       d.  $\sec^2\theta$
- V. Identify the item that does not have same ratio as the other three \_\_\_\_\_.  
 a.  $\frac{30}{45}$                                       b. 4 to 6                                      c. 2:3                                      d. 3 to 2
- VI. Polynomial of degree 4 is called \_\_\_\_\_.  
 a. Linear                                      b. Quadratic                                      c. Cubic                                      d. Bi quadratic
- VII. If  $\tan\theta = +1$  then  $\sin\theta =$  \_\_\_\_\_ where  $\theta$  lies in 3<sup>rd</sup> quadrant.  
 a.  $\frac{1}{2}$                                       b.  $-\frac{1}{2}$                                       c.  $-\frac{1}{\sqrt{2}}$                                       d.  $\frac{1}{\sqrt{2}}$
- VIII. Which one is the solution set of  $|-x| = 0$   
 a.  $\{-1\}$                                       b.  $\{1\}$                                       c.  $\{ \}$                                       d.  $\{0\}$
- IX.  $45^\circ =$  \_\_\_\_\_radian.  
 a.  $\frac{\pi}{3}$                                       b.  $\frac{\pi}{4}$                                       c.  $\frac{\pi}{6}$                                       d.  $\frac{\pi}{2}$
- X. The equation in matrices  $(AB)^{-1} = B^{-1}A^{-1}$  is true if A and B are.  
 a. Singular                                      b. Non Singular                                      c. Square                                      d. Diagonal



**Cadet College Wana (SWTD)**  
**Class 11<sup>th</sup> (Special Entry Test 2024)**

**Paper Maths**

**Section B ( Marks 40)**

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**Note: Attempt any 8 questions of the following. Each question carries 5 marks.**

**Q No:2** Domain of binary relation  $R = \{(x,y) / y+1 = 2x^2\}$  is set N. Find its range.

**Q No:3** If  $x = \sqrt{10} + 3$ . Find the value of  $x - \frac{1}{x}$ .

**Q No:4** A tree is 150 m above the sea level. Angle of depression of boat from its top is  $60^\circ$ .  
Find the distance between the boat and light house.

**Q No:5** Prove that  $\frac{\sin x + \cos x}{\sin x} - \frac{\cos x - \sin x}{\cos x} = \sec x \operatorname{cosec} x$

**Q No:6** Factorize using factor theorem  $x^3 - 4x^2 - 3x + 18$

**Q No:7** Find the value of K if root of  $x^2 - 7x + k = 0$  differ by unity.

**Q No:8** Let  $z_1 = 3 + 4i$  and  $z_2 = 3 - 2i$ . Find the quotient  $\frac{z_1}{z_2}$ .

**Q No:9** If  $x + 2y = 1$ ,  $2x + 3y = \frac{5}{2}$ , solve by Cramer's rule.

**Q No:10** The angle in a semi-circle is a right angle.

**Q No:11** Find the geometric mean of the marks 60, 65, 70, 80, 85, 90, 75.



**Cadet College Wana (SWTD)**

**Class 11<sup>th</sup>(Speical Entry Test 2024)**

**Paper English - Urdu**

Time Allowed: 1 hrs

Total Marks: 50

**ENGLISH – SECTION**

**Marks: 25**

Q: 1 Write an Essay on any one of the following. (10)

- Justice delayed is justice denied
- Pen is mightier than sword

Q: 2 Use the following pair of words in your own sentences. (10)

- Vale, Veil
- Stare, Stair
- Assent, Ascent
- Dinning, Dining
- Complement, Compliment

Q: 3 Change the voice of the following. (5)

- Let the page be turned over
- Who stole your bike?
- The sweater is knitted by her.
- I know him.
- Did you show me the dress?

**URDU – SECTION**

**Marks: 25**

سوال: 1 الف۔ مجاز مرسل اور کنایہ کی تعریف لکھیں نیز تین تین مثالیں دیں۔ (5)

ب۔ تشبیہ اعت استعارہ کی تعریف کریں نیز ایک شعری اور ایک نثری مثال دیں۔ (5)

سوال: 2 درج ذیل تراکیب کا مطلب واضح کریں۔ (5)

الف۔ پاسبان رنگ و بو      ب۔ وارث اسرار فطرت

سوال: 3 اپنے چھوٹے بھائی کو خط لکھیں جس میں "سوشل میڈیا کے معاشرے پر برے اثرات" کے بارے میں بتائیں۔ (10)



**Cadet College Wana (SWTD)**

**Class 11<sup>th</sup> (Special Entry Test 2024)**

**Paper Physics**

**Time Allowed: 1 hr**

**Section -A ( Marks =10)**

**Total Marks: 50**

**Q No. 1:- Encircle the correct option.**

- I. EM waves are sent to a TV set via special wire called \_\_\_\_\_  
a. TV cable      b. Cable      c. Picture cable      d. None of these
- II. A and B are the two inputs of a NAND gate, its output would be 1 when \_\_\_\_\_.  
a. A=1 & B=1      b. A=0 & B=1      c. A=1 & B=0      d. A=0 & B=0
- III. The power of a heater is 3000W and voltage is 240V, the value of fuse used in circuit is \_\_\_\_\_.  
a. 3 Amp      b. 5 Amp      c. 20 Amp      d. 13 Amp
- IV. The pressure of a gas in a container depends upon.  
a. Temperature      b. Quantity of gas      c. KE of molecules      d. All of them
- V. The relation between Co-efficient of linear and volume expansion is.  
a.  $\alpha = 3\gamma$       b.  $\gamma = 3\alpha$       c.  $\gamma = \frac{\alpha}{2}$       d.  $\gamma = 6\alpha$
- VI. When a small resistance joined in parallel with Galvanometer, it becomes.  
a. Ammeter      b. voltmeter      c. Ohmmeter      d. Avometer
- VII. The quantity of a radioactive substance is reduced to  $\frac{1}{8}$  of its initial amount. How many lives have elapsed?  
a. 2      b. 3      c. 4      d. 5
- VIII. Ohm is equal to \_\_\_\_\_.  
a.  $\frac{\text{Volt}}{\text{Amp}}$       b. Volt-Amp      c.  $\frac{\text{Amp}}{\text{Volt}}$       d. None of these
- IX. The term ratio of a transformer is 10, it means \_\_\_\_\_.  
a.  $V_s = 10V_p$       b.  $N_s = \frac{N_p}{10}$       c.  $N_s = 10N_p$       d.  $V_s = \frac{V_p}{10}$
- X. Which is an example of longitudinal waves?  
a. Radio wave      b. Sound wave      c. Light wave      d. Water wave



*Cadet College Wana (SWTD)*

Class 11<sup>th</sup> (Special Entry Test 2024)

Paper Physics

Section – B (Marks: 40)

Note: Attempt any 8 questions of the following. Each question carries 5 marks.

- Q No:2. A sound wave has a frequency of 3 KHz and wavelength 30cm. How long will it take to travel 2 Km?
- Q No:3 Prove that motion of a simple pendulum is SHM.
- Q No:4. Can a transformer operate on direct current?
- Q No:5. What do you know about Critical angle?
- Q No:6. Describe total internal reflection & conditions necessary for it?
- Q No:7. Write truth table of AND and OR Gate.
- Q No:8 If a concave mirror produces a real image is the image necessarily inverted. Explain?
- Q No:9 What is intensity level? Derive intensity level =  $10 \log \frac{I}{I_0} d_B$
- Q No:10 Write  $\alpha$  - decay process for  ${}_{91}\text{Pa}^{234}$ . Identify the parent and daughter nuclei.
- Q No:11 Explain DC motor with diagram.



**Cadet College Wana (SWTD)**  
**Class 11<sup>th</sup> (Special Entry Test 2024)**  
**Paper Computer Science**  
**Section – A (Marks :10)**

Time Allowed: 1 hr

Total Marks : 50

- Q No. 1** Encircle the correct option from the following.
- i. Which statement is used to move the control to the start of loop body?  
a. continue                      b. exit                                      c. else                                      d. break
  - ii. Which of the following gate is known as inverter?  
a. OR                                      b. AND                                      c. NOT                                      d. NAND
  - iii. What is the maximum number of possible input combination in a truth table that has three variables?  
a. 3                                      b. 6                                      c. 8                                      d. 9
  - iv. Which of the following tag is used for superscript  
a. `<s></s>`                      b. `<sub></sub>`                      c. `<sup></sup>`                      d. `<b></b>`
  - v. `<a></a>` tag used for:  
a. hyperlink                      b. list                                      c. table                                      d. frame
  - vi. The output of the compiler is called:  
a. program                      b. source code                      c. linked code                      d. object code
  - vii. Which of the following is a logical operator?  
a. %                                      b. <=                                      c. &&                                      d. +=
  - viii. Which Escape sequence is used to moves printing control to the beginning of the next line :  
a. \b                                      b. \a                                      c. \n                                      d. \\
  - xi. What will be the output of the expression,  $5+3*3-1$ ?  
a. 16                                      b. 13                                      c. 23                                      d. 12
  - x. if marks = 50 then the statement `(marks>33)?printf("pass"):printf("fail");` will print  
a. pass                                      b. fail                                      c. both a & b                      d. none of these



**Section -B (Marks: 40)**

**Note: Attempt any 8 questions of the following. Each question carries 5 marks.**

- Q No.2      What is Algorithm? Write role of algorithm in problem solving?
- Q No. 3      Draw a flowchart to print odd numbers from 1 to 100.
- Q No. 4      Differentiate between program syntax and program semantic.
- Q No. 5      What are reserved words? Write down any ten reserved words. Write down rules for writing variable names.
- Q No. 6      Write a program that finds the sum and product of two numbers.
- Q No 7      Differentiate between break and continue statements.
- Q No 8      Write down and explain general syntax of switch statement.
- Q No 9      What is nested loop? Explain its general syntax.
- Q No 10      What is logical AND operator and logical OR operator? Draw its truth table.
- Q No. 11      State three differences between RAM and ROM.



Time Allowed: 1 hrs

**QNo.1 Choose the correct option from the following.**

- i. Identify Lewis Acid-Base pair from the following  
 a)  $\text{NH}_3$  &  $\text{H}_2\text{O}$       b)  $\text{H}^+$  &  $\text{Ag}^+$       c)  $\text{H}^+$  &  $\text{H}_2\text{O}$       d)  $\text{Cl}^-$  &  $\text{O}^{2-}$
- ii. For which general reaction unit of  $K_c$  is same as that of concentration  
 a)  $2\text{A} + 3\text{B} \rightleftharpoons 4\text{AB}$       b)  $2\text{X} + \text{Y} \rightleftharpoons 3\text{XY}$   
 c)  $\text{R} + \text{S} \rightleftharpoons 2\text{V} + \text{W}$       d)  $\text{A} + \text{B} \rightleftharpoons 2\text{C} + \text{D}$
- iii. Which pair of organic compounds are isomers?  
 a) Butane & Butyl radical      b)  $\text{C}_2\text{H}_6$  &  $\text{C}_2\text{H}_4$       c)  $\text{CH}_3\text{OH}$  &  $\text{C}_2\text{H}_5\text{OH}$       d) Iso-butane & Iso-pentane
- iv. Compounds in which tetravalency of C is fully satisfied  
 a) Aromatic compounds      b) Alkynes      c) Alkanes      d) Olefins
- v. Oxidation State of O in  $\text{BaO}_2$  is  
 a) -2      b) -1      c) -0.5      d) -2.5
- vi.  $\text{CH}_4 + \text{Cl}_2 \longrightarrow \dots\dots\dots$  the products of reaction in the absence of light are  
 a)  $\text{C} + \text{HCl}$       b)  $\text{HCl} + \cdot\text{CH}_3$       c) Both A & B      d) No product
- vii. Which one of the following is a trisaccharide?  
 a) Raffinose      b) Maltose      c) Sucrose      d) Galactose
- viii.  $\text{CH}_3\text{COOC}_2\text{H}_5$  is a/an  
 a) Carboxylic acid      b) Ether      c) Ester      d) Alkyl halide
- ix. All of the following are chemical processes in metallurgy except  
 a) Roasting      b) Smelting      c) Electro-refining      d) Cyclone separation
- x. The lowest temperature of stratosphere is  
 a)  $-5^\circ\text{C}$       b)  $-92^\circ\text{C}$       c)  $17^\circ\text{C}$       d)  $-55^\circ\text{C}$



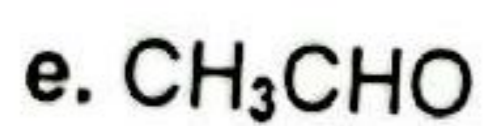
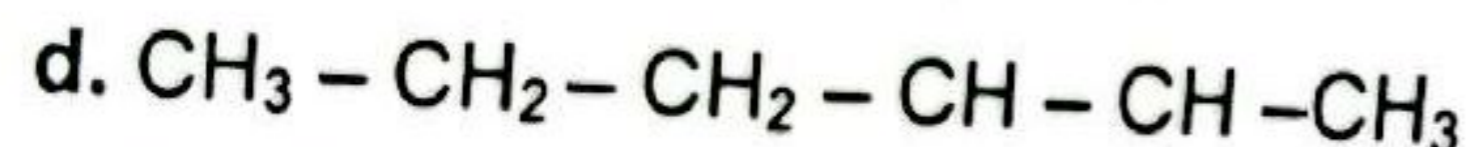
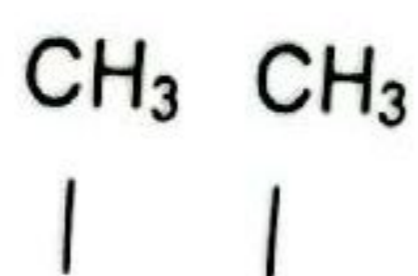
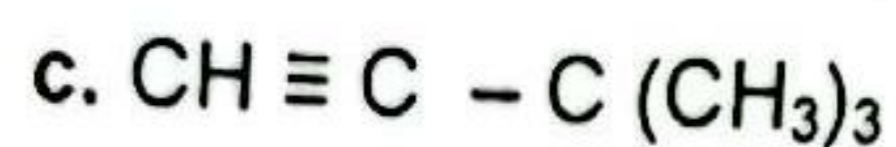
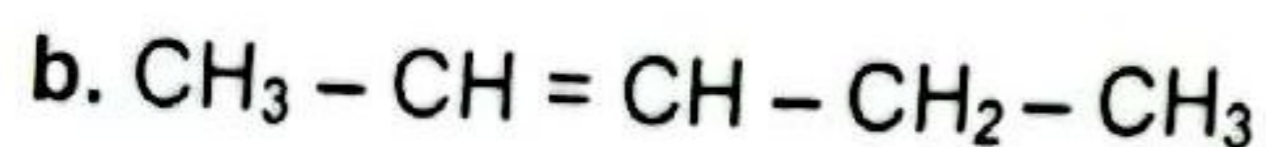
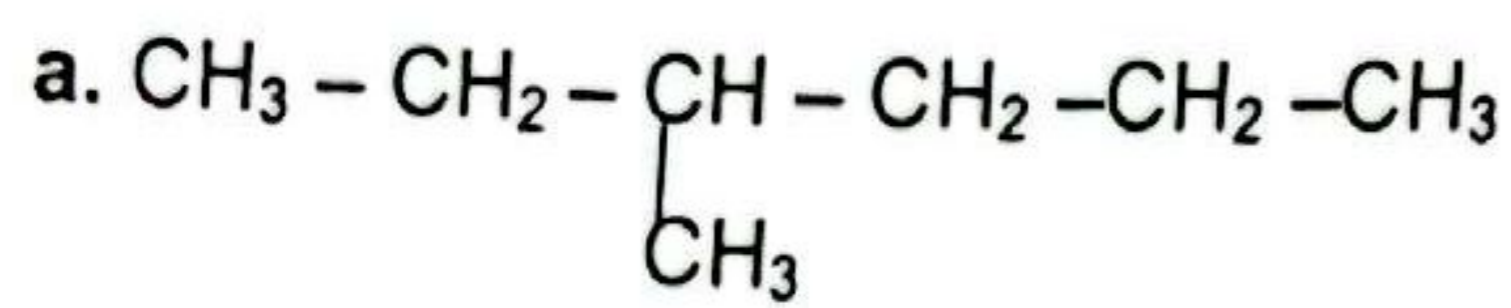
Section B

Note: Attempt any 8 questions from the followings. Each question carries 5 marks.

Q No: 2 How alkenes can be converted into glycols? Support your answer by writing balanced chemical equation.

Q No : 3 How Acid Rain is caused by SO<sub>x</sub>? Write complete mechanism for justification.

Q No: 4 Write IUPAC names of the following organic compounds.



Q No: 5 Find the molarity of a solution containing 0.4g of NaOH dissolved in 250cm<sup>3</sup> of solution.

Q No: 6 Draw flow sheet diagram of Solvay's process. How lime stone is converted into lime?

Q No: 7 How electrolytic cell is different from Galvanic cell? Give reaction that occurs on the cathode of Dry cell?

Q No: 8 What is peptide bond? Justify your answer by writing a suitable reaction.

Q No: 9 How alkynes can be oxidized?

Q No: 10 How water acts as a Bronsted Acid and Base. Write separate reactions for proof.

Q No: 11 Write electron cross dot formulae of CO, CO<sub>2</sub>, NH<sub>3</sub>, CCl<sub>4</sub> and BF<sub>3</sub>.