Milestone Int'l S.S/College

Balkumari-9, Lalitpur

First Term Examination 2081

Level: XII (science) **Subject: Biology** **F.M:75**

Time: 3 hrs **SET-A** **P.M:30**

Candidates are required to give their answer in their own words as far as practicable.
The figure in the margin indicates full marks.

Attempt all the questions

Part 1: Botany

Group A

A. Choose the correct answer **(1x5=5)**

1. In the monocot root, we observe
   a. Polyarch, open, collateral vascular bundles
   b. Suberised exodermis, casparien stripes, passage cells and cambium
   c. Suberised exodermis, polyarch, exarch xylem, and large pith
   d. Diarch to hexarch, exarch xylem, and reduced pith
2. Opening of stomata is because of
   a. Starch formation in guard cell
   b. Presence of CO_2 in the atmosphere
   c. Presence of O_2 in the atmosphere
   d. Turgidity of guard cell
3. Krantz anatomy is typical of
   a. C_4 plants b. C_3 plants c. C_2 plants d. CAM plants
4. Anticodon is associated with
   a. mRNA b. rRNA c. tRNA d. DNA
5. The possible gametes produced by genotype AaBb without crossing over is
   a. AB, Ab, aB, and ab c. Ab and ab
   b. Ab and aB d. AB and ab

Group B

Give a short answer to the following question. **(4×4=16)**

1. What is a vascular bundle? Explain the types of vascular bundles with their suitable diagram.
2. Differentiate transpiration and guttation.
3. Why did Mendel choose the pea plant for his experiment? Explain Mendel's law of segregation with an example.
4. Explain the mechanism of crossing over and its significance (any two).

   Or,

   Write short notes on photorespiration and its importance.

Group C

Give long answer to the following questions. **(2×8=16)**

1. Describe the light-dependent steps of photosynthesis. How are they linked to the dark reaction? Explain.
2. Describe the structure of Watson and Crick's model of DNA. Why is DNA called genetic material? Mention some functions of DNA.
   What is Criss-cross inheritance? Discuss the sex-linked inheritance with special reference to the eye colour of a fruit fly.

Part 2: Zoology

Group A

A. Choose the correct answer **(1x6=6)**

1. The phagocytic cells of connective tissue is……
   a) Mast Cells b) Plasma Cells
   c) Histocytes d) Adipocytes
2. Muscles found in visceral organs are ……
   a) Striated muscles b) Unstriated muscles
   c) Cardiac muscles d) Voluntary muscles
3. Peyer's patches are found in ……..
   a) Duodenum b) Ileum c) Stomach d) Oesophagus
4. Heart is innervated by……
   a) Trigeminal b) Facial c) Vagus d) Occulomotor
5. Where is carbonic anhydrase mostly found?
   a)WBC b) Blood platelets c) RBC d) Blood plasma
6. The process of oxidation of glucose in tissue to release energy is called……
   a. External respiration b. Tissue respiration
   c. Pulmonary respiration d. Cutaneous respiration

Group B

Give a short answer to the following question. **(4x4=16)**

1. Describe the structure & functions of pancreas.

   OR

   Draw a well labeled diagram of respiratory system of human.
2. Describe about the structure, function and location of areolar tissue with labelled diagram.
3. Explain how CO_2 is transported by blood in human body.
4. Different between the sympathetic and parasympathetic nervous system.

Group C

Give long answer to the following questions. **(2×8=16)**

1. Draw a well labelled diagram of human brain. Describe the structure and function of fore brain . (3+5)

   Or,

   Describe the process of nerve impulse conduction through a non-myelinated nerve fiber (8)
2. Describe the physiology of digestion in the human body. (8)

Milestone Int'l S.S/College

Balkumari-9, Lalitpur

First Term Examination 2081

Level: XII (science) **Subject: Biology** **F.M:75**

Time: 3 hrs **SET-B** **P.M:30**

Candidates are required to give their answer in their own words as far as practicable.
The figure in the margin indicates full marks.

Attempt all the questions

Part 1: Botany

Group A

A. Choose the correct answer **(5x1=5)**

1. If a colour-blind woman marries a normal man, their children would be
   a. All colorblind
   b. Carrier daughters and colorblind sons
   c. Normal sons and colorblind daughters
   d. Carrier sons and colorblind daughters
2. A handsome male who has no skill in dancing marries an ugly female who has no skill in dancing. They produce an ugly boy who has no skill in dancing. This is actually related to
   a. Law of dominance c. Law of segregation
   b. Law of independent assortment d. Law of paired factors
3. The no. of ATP and NADPH2 required to fix $3CO_2$ molecules in the Calvin cycle is
   a. 6 ATP and 6 NADPH2 c. 9 ATP and 6 NADPH2
   b. 12 ATP and 6 NADPH2 d. 18 ATP and 12 NADPH2
4. The ascent of sap will be maximum during
   a. Daytime b. Night time c. Early morning d. Noontime
5. Leaves of grass roll because
   a. Of the presence of intercalary meristem
   b. They have Kranz anatomy
   c. They have bulliform cells
   d. They have no cambium

Group B

Give a short answer to the following question. **(4×4=16)**

1. Compose the anatomical structures of the isobilateral leaf and dorsiventral leaf.
2. What is transpiration? Point out its advantages and disadvantages.
3. Describe the structure of tRNA with a well-labelled diagram.
4. What is incomplete dominance? Explain it with a suitable example. Differentiate incomplete dominance and co-dominance.

   Or,

   What is the ascent of soap? Explain its mechanism related to the theory of "transpiration pull and cohesion."

Group C

Give long answer to the following questions. **(2×8=16)**

1. Describe the light-independent steps of photosynthesis. Differentiate C3 and C4 pathways of photosynthesis.
2. What is linkage? Describe different types of linkage with suitable examples.

   Or,

   What is sex-linked inheritance? Why is it called x-linked inheritance? Describe it with the reference of colorblindness in human beings.

Part 2: Zoology

Group A

A. Choose the correct answer **1x6=6**

1. Epithelium found in urinary bladder is …….
   a) Squamous epithelium b) Cuboidal epithelium
   c) Pseudostratified epithelium d) Transitional epithelium
2. Sphincter of Oddi is found in the opening of ……
   a) Common bile duct b) Pancreatic duct
   c) Hepatopancreatic duct d) Hepatic duct
3. Antibodies are secreted by ……
   a) Mast Cells b) Plasma Cells
   c) Histocytes d) Adipocytes
4. Broca's area is associated with
   a) Sensation of smell b) Speech function
   c) Vision d) Learning and reasoning
5. Adam's apple is the part of……
   a) Larynx b) Trachea c) Lung d) Neck
6. Synaptic vesicles are found in…….
   a) Presynaptic neuron b) Synaptic neuron
   c) Synaptic cleft d) Seminal vesicles

Group B

Give a short answer to the following question. **4x4=16**

1. Write down the physiology of protein digestion in the human body.

   OR

   Draw a well labeled diagram of respiratory system of human.
2. Differentiate between the bone and cartilage.
3. Describe about T.S. of spinal cord with well labelled diagram.
4. What is chloride shift? Explain the process of it,

Group C

Give long answer to the following questions. **(2×8=16)**

1. Describe the process of nerve impulse conduction through a non-myelinated nerve fiber (8)

   OR

   Draw a well labelled diagram of human brain. Describe the structure and function of fore brain . (3+5)
2. Define digestion. Describe the different parts of alimentary canal of human with well labelled diagram. (1+5+2)

Milestone Int'l S.S./College

Balkumari-9, Lalitpur

First Term Examination-2081

Subject: **Chemistry** **Time: 3hrs** F.M: 75
Class: **XII** **SET-A** P.M: 30

Candidates are required to give their answer in their own words as far as possible. The figure in the margin indicates full marks.

Attempt ALL Questions:

Group A

Multiple choice Questions. **[11×1=11]**

1. Normality of 2M sulphuric acid is
   a) 2N b) 4N c) 0.5N d) 2.5N

2. In the titration of Na_2CO_3 and HCl, the indicator used is
   a) methyl orange b) methyl blue
   c) phenolphthalein d) litmus

3. Which of the following compounds is primary standard ?
   a) $KMnO_4$ b) $AgNO_3$ c) NaOH d) anhydrous Na_2CO_3

4. Which of the following is the composition of bronze?
   a) Cu,Pb and Sn b) Sn and Cu
   c) Zn and Pb d) Zn,Cu and Sn

5. Anti-Markovnikov's addition follows
   a) nucleophilic addition b) electrophilic addition
   c) free radical addition d) free radical substitution

6. Alcohals and Phenols can be distinguished by
   a) iodoform test b) acylation
   c) Libermann's test d) sodium

7. Dow's process is used in the preparation of
   a) alcohol b) benzene c) phenol d) chlobenzene

8. When tert-butyl bromide is reacted with sodium ethoxide,the major product is
   a) tert-butyl methyl ether b)diethyl ether
   c) ethane d) 2-methylpropene

9. Most reactive halide towards SN1 reaction is
   a) Sec-butyl chloride b) tert-butyl chloride
   c) n-butyl chloride d) alkyl chloride

10. $X \xrightarrow{KMnO_4/H+} Y \xrightarrow{K2Cr2O7/\ H+} Z.$

The compound X is primary alcohol which undergoes iodoform test. The compound X is:
   a) Propan-1-ol b) Propan-2-ol
   c) 2-halopropane d) ethanol

11. Which of the following is the chief ore of copper?
   a) Chalcopyrite b) Calamine c) Magnetite d) Siderite

Group B **8×5=40**

12. Write principle reaction for preparation of $CHCl_3$ from
   a) Ethanol b) Acetone. Why is $CHCl_3$ stored in dark brown air tight bottle? [2+2+1]

OR

How is Phenol prepared from (a) Aniline and (b) benzene? How do you explain that the –OH group of phenol is Ortho/ Para directing? Phenol is more reactive than benzene. Explain.

13. A solution of Conc. HCl contain 38% HCl by mass:
   a) What is meant by acidimetry?
   b) What is the molarity of this solution if the density of the solution is 1.19 g/cc?
   c) What volume of the Conc.HCl is required to neutralize one litre of 0.1M NaOH solution? [1+2+2]

OR

   a) Define the term P^H of a solution
   b) Calculate the hydroxyl ion concentration in mole/liter of a solution whose P^H is 4.7. Also determine the weight of NaOH required to produce these ions in one liter of the solution. [1+4]

14. An Organic compound (A) forms deadly poisonous phosgene gas when it exposes to air
   a) Identify the compound (A)
   b) Write reaction for the laboratory method of preparation of (A)
   c) Convert (A) into (i)Methane and (ii) Chloretone [1+2+1+1]

15. Suggest any two methods to prepare chlorobenzene. Chlorine in chlorobenzene is Ortho/Para directing but deactivating in electrophilic substitution reactions. Give reason [2+3]

16. Identify A, B, C and D in the following reaction sequence:

$$A \xrightarrow{NaOH/CaO} B \xrightarrow{Cl_2/Fecl_3} C \xrightarrow{Chloral/Conc.H_2SO_4} D$$

The compound (B) can be obtained by heating phenol with zinc-dust. [5]

17. A coinage metal (M) of electronic configuration $[Ar]3d^{10}4s^1$ belongs to group IB in the periodic table
    a) Draw a blast furnace for the smelting process during the extraction of (M) using its chief ore
    b) Explain the different chemical reactions involved during the formation of matte in the furnace. [5]

18. A piece of Mg ribbon is completely dissolved in 40cc of 0.1N HCl. The excess of acid required 15cc of 2.5N NaOH for complete neutralization. Find the weight of Mg [5]

19. 7.8g of dibasic acid are dissolved in water and the solution was made up 250cc. If 25cc of the solution required 32cc of 0.5N NaOH for neutralization, Find the molecular weight of the acid. [5]

Group C 8×3=24

20. (a) Suggest a suitable chemical method for the conversion of methanol into ethanol and vice versa. [2+2]
    (b) Write down the possible unsymmetical ethers of $C_4H_{10}O$ and their IUPAC Names. How would you prepare such ether by using Williamsons Synthesis method? [1+1+1+1]

OR

Give an example of each of the following reactions
i) Ozonolysis
ii) Caboxylation reaction
iii) Gattermann's reaction
iv) Fittig reaction
v) Friedel Craft's alkylation
vi) Elimination reaction
vii) Carbylamine reaction
viii) Iodoform reaction

21. Define normality and molarity. Write their relationship. 0.715g of $Na_2CO_3.xH_2O$ required 20ml of semi-normal hydrochloric acid solution for complete neutralization. Find the value if X [3+5]

22. a) If you are the given the mixture of methanamine, N-methylmethanamine and N,N-dimethyl methanamine, how will you separate them using Hoffmann's method? [5]
    b) Give a chemical reaction for the preparation of nitrobenzene from benzene.Starting from nitrobenzene how will you prepare:
    i) azobenzene ii) azoxybenzene [1+1+1]

Milestone Int'l S.S./College

Balkumari-9, Lalitpur

First Term Examination-2081

Subject: **Chemistry** **Time: 3hrs** F.M: 75

Class: **XII** **SET-B** P.M: 30

Candidates are required to give their answer in their own words as far as possible. The figure in the margin indicates full marks.

Attempt ALL Questions:

Group A

Multiple Choice Questions. **[11×1=11]**

9. The normality of 1% solution of sulphuric acid is
   a) 1 N b) 0.1 N c) 0.2 N d) 1.5 N

1. If 20ml of 0.5N NaOH is mixed with 30ml of 0.3N HCl, the resulting solution is
   a) acidic b) basic c) neutral d) none

2. A blue colored salt of group II metal ions gives a blue precipitate with NaOH which on boiling gives black precipitate of
   a) Cu_2O b) CuO c) HgO d) ZnO

3. Bell metal is an alloy of
   a) Cu,Pb and Sn b) Sn and Cu
   c) Zn and Pb d) Zn, Cu and Sn

4. Markovnikov's rule follows
   a) electrophilic addition b) electrophilic substitution
   c) free radical addition d) nucleophilic addition

5. Which of the following components gives iodoform test?
   a) C_2H_5OH b) CH_3OH c) $CH_3CHOHCH_3$ d) HCHO

6. To prevent oxidation of ether into peroxide, ether is stored with
   a) Cu wire b) Fe wire c) Ag d) Na

7. The order of basic strength of 1^0,2^0 and 3^0 amine and ammonia is
   a) $3^0>2^0>1^0>NH_3$ b) $2^0>1^0>3^0>NH_3$
   c) $2^0>3^0>1^0>NH_3$ d) $3^0>1^0>2^0>NH_3$

9 Which of the following can act as both Bronsted acid and base?
   b) HCl b) H_3PO_4 c) HCO_3^- d) O^{--}

10. The reduction of which of the following compounds would yield secondary amine?
    a) alkylnitrile b) carbylamine
    c) secondary nitro compounds d) primary amine

11. Another name of grain alcohol is
    a) wood alcohol b) methyl alcohol
    c) ethyl alcohol d) n-propyl alcohol

Group B 8×5=40

12. Normality and Molarity are the ways of expressing concentration of solution
    a) It is better to express concentration in molality rather than molarity.why
    b) Establish the relation between normality and molarity
    c) What volume of decinormal solution of HClis required to neutralize 25ml NaOH containing 8g NaOH in one litre solution? [1+1+3]

OR

You are asked to find out the concentration of organic acid in orange juice using standard NaOH solution
    d) Which indicator will you use for the titration? Why?
    e) Which one of these primary standard solution? Why?
    f) What volume of 10M and 5M NaOH solutions must be mixed to prepare 6L of 6M NaOH solution? [1+1+3]

13. Ionic product of water at 25^0 is $1x10^{-14}$ and water is regarded as very weak electrolyte [1+1+2+1]
    a) Define ionic product of water.
    b) Deduce the relation $K_w=[H^+][OH^-]$
    c) Calculate the OH^- concentration of 0.01M HCl at 25^0
    d) What is the effect of temperature on ionic product of water?

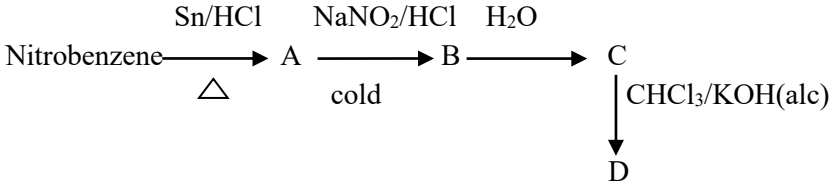
14. An Organic compound (A) forms sleep inducing drug with acetone in the presence of aq. Alkali?
    d) Identify the compound (A)
    e) Why is (A) stored in dark and brown bottle?
    f) Write reaction for the laboratory method of preparation of (A) using propanone.

g) What happens when the compound (A) is treated with an aq. Alkali and phenol. [1+1+2+1]

OR

Suggest any two methods to prepare chlorobenzene.Chlorine in chlorobenzene is Ortho/Para directing but deactivating in electrophilic substitution reactions. Give reason [2+3]

15. Identify A,B,C and D in the following reaction sequence.



What happens when C is treated with an aqueous bromine? [5]

16. How is Phenol prepared from (a) Aniline and (b) benzene? How do you explain that the –OH group of phenol is Ortho/ Para directing? Discuss any one test reaction of phenol. [1+1+2+1]

17. A metal (M) having atomic number 30 is referred as non-typical transition metal [2+3]
    a) Identify the metal (M) and its chief ore
    b) Write the reduction step during the extraction of (M)

18. Starting from Methyl magnesium bromide (CH_3MgBr),how would you prepare:
    i) ethanol ii) ethane iii)propan-2-ol iv) ethanoic acid and
    v) 2-methylpropan-2-ol [1+1+1+1+1]

19. You are given an organic compound having molecular formula C_3H_7X.
    i) Write down a primary and secondary haloalkane giving their IUPAC name.
    ii) How would you convert primary haloalkane into secondary haloalkane?
    iii) What product is obtained when the secondary haloalkane is subjected to Wurtz reaction? [2+1+2]

Group C 8×3=24

20. a) Starting from nitrobenzene, how would you obtain
    i) Hydrazobenzene ii) P-aminophenol iii) phenylisocyanide. [1+1+2]
    b) Why is methanamine stonger base than ammonia? [2]
    c) Write any suitable chemical test to distinguish between ethanamine from N-ethylmethanamine. [2]

OR

Give an example of each of the following reactions [1×8=8]
    ix) Sandmeyer's reaction
    x) Carbonylation reaction
    xi) Hydroboration- Oxidation reaction
    xii) Hoffmann's bromamide reduction
    xiii) Friedel craft's acylation
    xiv) Reimer-Tiemen's reaction
    xv) Coupling reaction
    xvi) Dehydrohalogenation

21. One of the common acid base titration is the reaction between H_2SO_4 and anhydrous Na_2CO_3
    a) Define molar solution, end point, normality factor and acidity of base. [4]
    b) 100ml of Na_2CO_3 solution contains 0.53g of Na_2Co_3. If 10ml of this solution is added to 'X' ml of water to obtain 0.01M Na_2CO_3 solution. Calculate the value of 'X' [4]

22. An alcohol (P) having molecular formula C_3H_8O undergoes Victor-Meyer's test to give blood red color at the end of reaction
    i) Write the structural formula of (P) and give its IUPAC name [1]
    ii) Write down complete Victor-Meyers test of (P) [2]
    iii) Starting from CH_3CH_2MgBr, how can you obtain (P)? [2]
    iv) What happens when (P) is heated with copper at 300^0C? [1]
    v) How do you convert (P) into propanone [2]

Milestone Int'l Secondary School

Balkumari, Lalitpur

First Terminal Exam-2081

Grade: 12 **Subject: Computer Science** **F.M:**50

Time: 2:00 hrs **SET A**

Group A

Multiple Choice Questions 1×9=9

1. Repetition of the statement until the given condition is true is called..
   a) Selection b) Auto Function
   c) Recursive Function d) Iteration

2. Which of the following command is used to create the database instance?
   a) ALTER b) GRANT c) CREATE d) REVOKE

3. ….. is a concurrent bi-directional mode of communication.
   a) Simplex b) Half duplex c) Full Duplex d) None

4. …… is used to add the data into the file and read the data from the file.
   a) w+ b)r+ c) ab+ d) a+

5. …. Is a generic term describing one's ability to use technology while moving as opposed to portable computers.
   a) Cloud computing b) virtual reality
   c) Mobile computing d) social media

6. Which of the following command is correct to insert data into the table?
   a) INSERT INTO values (101,'Sita') student (roll, name);
   b) INSERT values (101,'Sita') student (roll, name);
   c) INSERT INTO student (roll, name) values (101,'Sita');
   d) None of the above

7. … is used to indicate that the following code is going to be jquery which distinguish between jquery and regular JavaScript.
   a) @ b) # c) $ d) %

8. Which of the following is the type of E-commerce?
   a) B2E b) A2B c) D2D d) none

9. What is the output of the following program?

```c
#include<stdio.h>
#include<conio.h>
int main()
{
    int i,a=1,b=1;
    for(i=1;i<=5;i++)
    {
        printf("%d",a);
        int c=a+a;
        a=b;
        b=c;
    }
    return 0;
    getch();
}
```

   a) Compile error b) 11224
   b) 11235 c) 11111

Give Short answer to the following questions 5×5=25

10. Differentiate between centralized database and distributed database with figure. 5

    OR

    Define normalization. Explain about INF and 2NF with example. 5
11. Define E-commerce. Explain about different types of E-commerce. 5
12. Explain about different types of direction of communication with figure. 5
13. Explain about Relational Database Model with merits and demerits. 5
14. Write a JavaScript code to check whether the number entered by the user is prime or not. 5

    OR

    Write a JavaScript function to display the middle number among the three different number entered by the user. 5

Group C

Give Long answer to the following questions 8×2=16

15. WACP to store the information of 10 person including 4 members and display it on the screen using structure variable. 8

    OR

    Explain about File handling with diagram. WACP to store Name and address of 5 different students and display it on the screen after reading from the file in an appropriate format. 5+3
16. Define Networking. What are the different types of topology? Explain about bus topology, star topology and ring topology with figure and merits and demerits. 2+6

Milestone Int'l Secondary School

Balkumari, Lalitpur

First Terminal Exam-2082

Grade: 12 **Subject: Computer Science** **F.M:**50

Time: 2:00 hrs **SET B**

Group A

Multiple Choice Questions 1×9=9

1. A function which calls itself is called a ……
   a) Self-Function b) Auto Function
   c) Recursive Function d) Static Function
2. …… is not the data type of SQL.
   a) Number b) Text c) date/time d) Form
3. A block of statement that is used for doing some specific task is called..
   a) Structure b) Record c) Function d) None
4. Which is not the communication media?
   a) Wire b) Microwave c) Satellite d) NIC
5. The logical representation of database is called…..
   a) None b) data type c) Schema d) field
6. Which of the command is used for deleting "email" column from the table "student"?
   a) ALTER TABLE student DROP COLUMN Email;
   b) ALTER TABLE student DROPS COLUMN email;
   c) ALTER TABLE students DROP COLS EMAIL;
   d) ALTER TABLE student DROP COLUMN email;
7. A variable that stores the address of another variable is called..
   a) Array b) variable c) pointer d) function
8. …… is the column of a table that points to the primary key of another table.
   a) CK b) PK c) FK d) SK
9. What is the output of the following program?

```
int main()
{
    struct number
    {
        int n1;
        float n2;
    }f1;
    f1.n1=1000;
    f1.n2=20;

    printf("%d",f1.n1);
```

   a) 0 b) 1000 c) Compiler error d) 20

Group B

Give Short answer to the following questions 5×5=25

10. Define DBMS. What are the advantages and disadvantages of DBMS? 1+4

OR

Write short notes on: **Key and DML** 5

11. Define AI. What are application field of AI? 2+3
12. Differentiate between LAN and WAN. 5
13. Explain about hierarchical database model with merits and demerits. 5
14. Write a JavaScript code to enter 5 different numbers and calculate its sum and average. 5

OR

Write a JavaScript function to display the largest number among the three different number entered by the user. 5

Group C

Give Long answer to the following questions 8×2=16

15. WACP to store the information of 'n' books including 4 members and display the information of account book on the screen using structure variable. 8

OR

Explain the function of fprintf() and fscanf() with example. WACP to read the successive record from the file and display it on the screen after reading from the file. 3+5

16. Differentiate MAC address and IP address with example. Explain about ISO/OSI layer of networking. 3+5

Milestone Int'l S.S./College

Balkumari, Lalitpur

First Terminal Exam- 2081

Subjet:English

Grade: XII (Science) **Set:A** **F.M: 75**

Time: 3 hrs. **P.M: 27**

Candidates are required to give their answers in their own words as for as practicable. The figures in the margin indicate full marks

1. **Read the following passage and answer the following.** **15**

Cities are the engines of economic growth and innovation, but they also come with a hefty environmental footprint. Urban sprawl, pollution, and resource depletion pose significant challenges. However, a new wave of urban development is emerging – the concept of media green cities. These cities prioritize sustainability while fostering economic prosperity and a high quality of life for residents.

Media green cities are designed with a focus on green infrastructure. This includes extensive parks, green roofs, bioswales (rain gardens that filter stormwater), and urban forests. These elements not only beautify the city but also provide essential ecological services. Parks and green spaces offer recreational opportunities and improve air quality. Bioswales help manage stormwater runoff, reducing the risk of flooding and improving water quality. Urban forests absorb carbon dioxide and provide habitat for wildlife.

Transportation is a major source of pollution in traditional cities. Media green cities prioritize public transportation options like buses, light rail, and subways. They also invest in cycling infrastructure, creating dedicated bike lanes and secure parking facilities. This encourages residents to opt (prefer) for cleaner and healthier modes of transportation. It offers discounted public transportation passes or creates reward programs for frequent users. Additionally, these cities may implement congestion charges or car-free zones to further reduce reliance on private vehicles.

Media green cities leverage technology to optimize resource use. Smart grids improve the efficiency of energy distribution and allow for the integration of renewable energy sources like solar and wind power. Building automation systems can optimize heating, cooling, and lighting in buildings, reducing energy consumption. Sensor networks monitor environmental conditions, allowing city officials to identify and address problems like air pollution or water leaks promptly.

The success of a media green city depends on the active participation of its residents. These cities promote environmental education and awareness campaigns. The citizen engagement is important for the success of a media green city. These campaigns encourage the citizen participation in decision-making processes related to sustainability initiatives, they are more likely to support and comply with green policies. Community gardens, greening programs, and public awareness campaigns foster a sense of ownership and responsibility for the city's environment.

The "media" aspect of media green cities signifies the importance of communication and knowledge sharing. These cities actively showcase their sustainability efforts through various media channels. This includes documentaries, social media campaigns, and international conferences. By sharing their success stories, they inspire other cities to adopt similar practices, accelerating the global shift towards sustainable urban development.

Questions:

A. Choose the most appropriate option: [5X1=5]

1. What is the primary focus of media green cities?
   a) Economic growth only
   b) Sustainability with economic prosperity
   c) Technological innovation
   d) Reducing the size of urban areas
2. Green roofs contribute to a media green city by:
   a) Reducing noise pollution
   b) Improving air quality and managing stormwater
   c) Providing additional housing units
   d) Creating more parking spaces
3. Which of the following is not a priority for transportation in media green cities?
   a) Encouraging carpooling
   b) Expanding public transportation networks
   c) Promoting electric vehicles
   d) Prioritizing the construction of wide highways
4. How does smart technology contribute to sustainability in media green cities?
   a) By providing entertainment options for residents
   b) By optimizing resource use and integrating renewable energy
   c) By allowing for more high-rise buildings
   d) By increasing traffic flow
5. What is the role of media in media green cities?
   a) To generate advertising revenue
   b) To share best practices and inspire other cities
   c) To control access to information
   d) To promote unhealthy lifestyles

B. Decide whether these statements are *True* or *False.* Write *NOT GIVEN* if you do not find the information. [5X1=5]

1. Media green cities are not designed with a focus on green infrastructure.
2. Urban forests absorb carbon dioxide and provide habitat for wildlife.
3. Transportation is a minor source of pollution in traditional cities.
4. We are amplifying the planet's natural greenhouse effect and turning up the dial on global warming.
5. Life resembles in only a slight degree the popular image of it.

C. Answer the following questions from the passage. [5X1=5]

1. Briefly explain one way in which green infrastructure benefits a city.
2. What are the challenges that media green cities aim to address?
3. Describe one way that a media green city might encourage residents to use public transportation.
4. Why is citizen engagement important for the success of a media green city?
5. Offer a suitable title for the passage.

2. Write short answer of the following questions. [5X2= 10]

a. How does Julia Burgos challenge traditional societal norms and what does this reveal about her rebellious nature? *(I Was My Own Route)*

b. How does the speaker view the temporary nature of life on Earth? *(Every Morning I Wake)*

Or,

What was the writer's experience with libraries when he came to New York City? *(On Libraries)*

c. How did the arrival of the baby affect the couple's relationship with their neighbors? *(Neighbors*)

d. Why does Mrs. Baroda go to sit under the oak tree at night, and what happens while she is there? *(A Respectable Woman)*

Or,

How does the poem explore the theme of innocence? *(A Day)*

e. According to Emile Durkheim, what are the functions of marriage for men in modern society? *(Marriage as a Social Institution)*

3. Write long answer to the following questions. [2X5=10]

a.How does Famous Actress's behavior towards Earnest Young Woman reveal her true character, and what does this say about the nature of deception and manipulation in human relationships?*(A Matter of Husbands)*

Or,

Explain the following lines with reference to the context.*(I Was My Own Route)*

Already my course now set in present,
I felt myself a blossom of all the soils of the earth,
of the soils without history,
of the soils without a future,
of the soil always soil without edges
of all the men and all the epochs.

b.What is the significance of Rakesh's decision to return to India after studying in the USA, and how does he maintain his family's traditions? (*A Devoted Son)*

4. Write a few paragraphs about a significant event or experience that has shaped your personal growth and explain how it has influenced your perspective on life. [7]

5. Suppose you are the General Manager of Buddha Bhumi Travels. Issue a press release on behalf of the Buddha Bhumi Travels PVT. LTD. about the cancellation of bus services to the hilly reasons due to heavy rain fall and landslides. [8]

6. The payments landscape is shifting gears from cash to digital mode. Digital payment brings ease and convenience to the consumer. Is it possible to apply such cashless methods in payments in Nepal? Write an article on it. [10]

7. Do as indicated in the brackets. [10X1=10]

a. Oh, so you want to live in the village, ……? (Rewrite the following using suitable question tag.)
b. The street had a nasty jam. There ….. (must/could/would) have been a demonstration of some political parties. (Put the most appropriate modal auxiliary verb.)
c. He is an extrovert. He has got too ……(little/many/much/few) friends. (Choose the correct option.)
d. You are driving very fast. Would you please drive ……..…? (a bit/slowly) (Use the words from the bracket to complete the sentence.)
e. Reading and writing story (need) high imaginative skill.(Rewrite the sentence with the correct form of verb in the bracket.)
f. In spite of her poor eyesight,…….(Complete the sentence in an appropriate way.)
g. Why did they cancel the meeting? Do you know ……..? (Change the direct question into indirect one.)
h. She **sometimes** goes to the cinema.(Make Wh-question so that the word in the bold become the answer.)
i. He said, "Alas! She failed the exam."(Change the sentence into indirect speech.)
j. She does not do her assignment. (often) – Put the frequency adverb in appropriate place.

8. Do as indicated. [5X1=5]

a. How many syllables are there in *"infection"* and *"causality*"?
b. The beauty of nature must be praised by all. Here, the word *beauty* is …..
   a. a noun b. an adjective c. an adverb d. verb
c. Which one of the following words does not take the prefix *'un'*?
   a. satisfy b. attended c. cultured d. civilized
d. Make a sensible sentence using the word- *"detrimental"*.
e. Which one of the following words is synonymous with the word *'stop'*?
   a. cease b. eliminate c. commence d. commend

Milestone Int'l S.S./College

Balkumari, Lalitpur

First Terminal Exam- 2081

Subject: English

Grade:XII (Science) **Set:B** **F.M: 75**

Time: 3 hrs. **P.M: 27**

Candidates are required to give their answers in their own words as for as practicable. The figures in the margin indicate full marks

1. Read the passage given below and answer the questions. 15

Media marketing, the art of promoting products and services through various communication channels, has undergone a dramatic transformation in the digital age. Gone are the days of relying solely on traditional advertising outlets like television commercials and print ads, which focuses on interrupting consumers with promotional messages. Today's media landscape is a dynamic ecosystem of social media platforms, streaming services, and interactive experiences. This passage explores the intricacies of media marketing in this ever-evolving environment, equipping you with the knowledge to capture audience attention and achieve your marketing goals.

The foundation of successful media marketing lies in a deep understanding of your target audience. Who are you trying to reach? What are their interests, needs, and online behavior? By creating buyer personas, detailed profiles of your ideal customers, including their demographics, interests, online behavior and challenges, you can tailor your message and choose the media channels most likely to resonate with them. Social media listening tools can be invaluable in this process, allowing you to track conversations, identify trends, and understand how your target audience talks about products and services like yours.

In today's cluttered media environment, simply interrupting consumers with advertisements is no longer enough. Content marketing which aims to provide valuable subject matter, the creation and distribution of blue-chip, informative, or entertaining substance, is key to attracting and engaging your audience. This content can come in many forms, including blog posts, infographics, videos, podcasts, and social media updates. The goal is to provide genuine value, establishing yourself as a thought leader in your industry and building trust with potential customers.

Social media platforms offer a powerful and cost-effective way to connect with your audience and build brand awareness. By creating engaging content, running targeted social media ads, and actively participating in online conversations, you can foster a community around your brand. However, it's crucial to choose the right platforms for your target audience. While Facebook might be ideal for reaching an older demographic, Instagram and TikTok cater more towards younger generations.

Partnering with social media influencers, individuals who have built a large and engaged following can be a powerful media marketing strategy. Influencers can promote your products or services to their audience, leveraging their credibility and reach to drive brand awareness and sales. However, it's important to choose influencers who align with your brand values and target audience for authenticity and effectiveness.

The media landscape is constantly evolving, with new technologies emerging all the time. Virtual reality (VR) and augmented reality (AR) offer innovative ways to engage consumers and showcase products in a unique and interactive manner. Additionally, the rise of voice search necessitates optimizing your online presence for voice assistants like Siri and Alexa.

Questions:

A. Choose the most appropriate option: [5]

1. Which of the following is not a core principle of successful media marketing?
   a) Targeting a broad audience
   b) Understanding your target audience
   c) Creating valuable content
   d) Building trust with potential customers
2. Social media marketing is most effective when:
   a) You post infrequently and on any platform.
   b) You create engaging content and target the right platforms.
   c) You rely solely on organic reach (without paid advertising).
   d) You promote only your products without offering any value.
3. What is the primary benefit of influencer marketing?
   a) Reaching a wider audience through established personalities.
   b) Reducing marketing costs compared to traditional advertising.
   c) Having complete control over the influencer's message.
   d) Avoiding the need to create your own marketing content.
4. Content marketing is focused on:
   a) Interrupting consumers with advertisements.
   b) Providing valuable and informative content.
   c) Promoting sales and discounts aggressively.
   d) Creating short-term marketing campaigns.
5. Why is it important to stay up-to-date with new technologies in media marketing?
   a) To comply with government regulations.
   b) To offer innovative ways to engage consumers.
   c) To avoid being penalized by search engines.
   d) To stay relevant in a constantly evolving landscape.

B. Decide whether these statements are *True* or *False*. Write *NOT GIVEN* if you do not find the information. [5]

a) Partnering with social media influencers can't be a powerful media marketing strategy.

b) Media marketing has undergone a dramatic transformation in the digital age.
c) The foundation of successful media marketing doesn't lie in a deep understanding of your target audience.
d) Social media can influence and control people's life.
e) Social media marketing also has the benefit of being broad but also targeted.

C. Answer the following questions: [5]

a) Briefly explain the concept of a buyer persona.
b) How can social media listening tools be beneficial for media marketing?
c) What is the difference between traditional advertising and content marketing?
d) What does the passage explore?
e) Offer a suitable title for the passage.

2. Write short answer of the following questions. [5X2= 10]

a) What does the speaker mean when she says she was playing a game of hide and seek with her being*? (I Was My Own Route)*
b) How does the poet highlight the magnificence of the God? (*Every Morning I Wake)*

Or,

What is the significance of the offstage character, Alfred, in the play? *(A Matter of Husband)*

c) What cultural differences existed between the couple and their Macedonian and polish neighbor?*(Neighbors)*
d) Why does Gaston disagree with his wife on Gouvernail's character*? (A Respectable Woman)*

Or,

What makes the poem lyrical and sonorous? *(A Day)*

e) What is one of the central problems in modern society? *(Marriage as a Social Institution)*

3. Write long answer to the following questions. [2X5=10]

a. Shed on the difference between an ordinary woman and actress. *(A Matter of Husbands)*

OR,

How does Rakesh take care of his aging father, and what changes does he make to his father's diet and lifestyle? Explain in detail. (A Devoted Son)

b. A proverb says, "Nothing is pleasanter than exploring a library." Does this proverb apply in the essay? Explain. *(On Libraries*)

4. Write a few paragraphs on the title 'Technology Addiction among Youths.'[7]

5.Write a press release on behalf of the student's- led environmental club announcing a campus-wide initiative to reduce plastic waste and promote sustainability. [8]

6. "Social, cultural, moral and ethical values play crucial role than legal system in making human life and society more advanced and standard one." Write an essay expressing your opinion in favor or against it. [10]

7. Do as indicated in the brackets. [10X1=10]

a. Tony does not know Tom, …… (Rewrite the following using suitable question tag.)
b. I've got a fast internet at home. I …… (Complete the following using correct modal verb.)
c. The entire winter season was dry this year. We had …….(little/few) rain. (Choose the correct option.)
d. Sujal is less intelligent than he pretends. He is not as …….. (Rewrite the sentence with the sentence beginning given.)
e. All but one of the students (has/have) complained about you.(Rewrite the sentence using correct form of verb.)
f. He climbed the mountain in spite of …..(Complete the sentence in appropriate way.)
g. I understand what she meant to say. She spoke very fast. (Join the pair of sentence using although/even though.)
h. They were talking about **the new movie.** (Make Wh-question so that the word in the bold become the answer.)
i. Did you notice if he had left the car in the park. (Change the indirect question into direct question.)
j. We go to movie theatre. (occasionally) – put the frequency adverb in appropriate place.

8. Do as indicated. [5X1=5]

a. How many syllables are there in "responsibility" and "persistent"?
b. Write a word with the prefix "ultra" and define the word.
c. The antonym of 'amateur' is ……
b. professional b. inattentive c. withdraw d. debtor
d. Use the following word in meaningful sentence – "flimsy".
e. Write a single suitable word for the meaning "strong and unlikely to break or fall".

Milestone Int'l S.S./College

Balkumari, Lalitpur

First Terminal Exam- 2081

Subject: Mathematics

Grade: XII **Set-A** **F.M: 75**

Time: 3 hrs. **P.M: 30**

Candidates are required to give their answers in their own words as for as practicable. The figures in the margin indicate full marks.

Attempt all questions

Group A

Select the best alternatives from the followings **[11×1=11]**

1. The number of combination of n objects taken r at a time in which p particular objects never occur is :
   a) $C(n-p,r)$ b) $C(n,r)$
   c) $C(n,p-r)$ d) $C(n-p,r-p)$
2. The general term in the expansion of $(a+x)^n$ is
   a) $C(n,r)a^r x^r$ b) $(n,r)a^{r-n}x^r$
   c) $C(n,r)a^{n-r}x^r$ d) $C(n,r)a^r x^{n-r}$
3. If ω is an imaginary cube roots of unity , then $(1+\omega-\omega^2)^7$ is equal to
   a) 128ω b) -128ω c) $128\omega^2$ d) $-128\omega^2$
4. A system of linear equations $a_1x+b_1y=c_1$ and $a_2x+b_2y=c_2$ has independent and unique solution , if
   a) $\frac{a_1}{a_2}=\frac{b_1}{b_2}$ b) $\frac{a_1}{a_2}\neq\frac{b_1}{b_2}$
   c) $\frac{a_1}{a_2}=\frac{b_1}{b_2}\neq\frac{c_1}{c_2}$ d) $\frac{a_1}{a_2}=\frac{b_1}{b_2}=\frac{c_1}{c_2}$
5. If the augmented matrix of system of linear equations reduces to $\begin{bmatrix}1 & 0: & -1\\ 0 & 0: & 2\end{bmatrix}$ then the solution set is
   a) (1,0) b) (0,0) c) (-1,2) d) no solution
6. The focus of the parabola : $y^2=12x$ is
   a) (0,3) b) $(0,-3)$ c) (3,0) d) $(-3,0)$
7. Which one of the following is equal to $\lim_{x\to 0}\frac{3x-Sinx}{2x}$?
   a) 3 b) -3 c) $\frac{1}{2}$ d) 1
8. If the radius of the circle increases from 3 cm to 3.01cm , then the approximate increase in area is
   a) $0.06\pi cm^2$ b) $0.0601\pi cm^2$
   c) $0.0001\pi cm^2$ d) $0.01\pi cm^2$
9. The equation of the tangent to the curve $y^2=4x$ at the point (1,2) is
   a) $x+y=1$ b) $x-y=1$
   b) $x+y+1=0$ d) $x-y+1=0$
10. A football stadium has 9 entrances gate and 4 exists gate. In how many ways can a man enter and leave the stadium?
    a) 9 b) 13 c) 4 d) 36
11. The infinite series of $e^1$is
    a) $1+\frac{1}{1!}+\frac{1}{2!}+\frac{1}{3!}+\frac{1}{4!}+\ldots\ldots$ b) $1+\frac{1}{2!}+\frac{1}{3!}+\frac{1}{4!}+\ldots\ldots\ldots$
    c) $1-\frac{1}{2!}+\frac{1}{3!}-\frac{1}{4!}+\ldots\ldots\ldots$ d) $1-\frac{1}{1!}+\frac{1}{2!}+\frac{1}{3!}+\ldots\ldots\ldots$

Group B **[8×5=40]**

12. a) In how many ways the letter of the words "ELEMENT" can be arranged, so that the vowels are always together?
    b) Find the term independent of x in the expansion [2+3]
    $\left(x^2+\frac{1}{x}\right)^{12}$
13. a) If $z_1=r_1(\cos\theta_1+i\sin\theta_1)$ and $z_2=r_2(\cos\theta_2+i\sin\theta_2)$ be two complex numbers , answer the following: [3+2]
    i) what is the argument of z_1z_2?
    ii) what is the modulus of z_1z_2?
    iii) what is the polar form of z_1z_2?
    b) How many numbers of three different digits less than 500 can be formed from the integers 1,2,3,4,5,6,7 ?
14. a) In the expansion of $(a+x)^n$, n is positive integer, answer the following : [3+2]
    i) write the general term in the above expansions.
    ii) write the number of term in the above expansions.
    iii) write the sum of the binomial coefficient in the expansion of $(1+x)^n$, when $x=1$?
    b) If $y=x-\frac{x^2}{2}+\frac{x^3}{3}+\ldots\ldots$, show that: $x=\frac{y}{1!}+\frac{y^2}{2!}+\frac{y^3}{3!}+\ldots\ldots$

15. a) Express the complex number $\sqrt{3}+i$ into polar form.
    b) Find the number of ways in which 4 men and 3 women can be seated in a row having seven seats so that the men and the women must alternate. [3+2]
16. a) Find the equation of the tangent to the circle $x^2+y^2=4$, which are parallel to $3x+4y-5=0$. [2+3]
    b) Using Cramer's rule to solve the system : $x-y=2$, $2x+3y=9$.
17. a) Find the equation of the parabola whose vertex is at (3,2) and the focus is at (5,2) . [2+3]
    b) Using row-equivalent matrix to solve the system : $x+4y+z=18$, $3x+3y-2z=2$, $-4y+z=-7$.
18. a) Deduce the equation of the tangent to the parabola $y^2=4ax$ at (x_1,y_1) on the parabola. [3+2]

    b) Find the derivatives of $\left(Sinh^{x/a}\right)^{x^2}$

19. a) determine the equation of the hyperbola in standard position with focus at $(-7,0)$ and eccentricity $\frac{7}{4}$. [2+3]

    b) Find the equation of the tangent and normal to curve $y=2x^3-5x^2+8$ at (2,4) .

Group C **[2+3+3]**

20. a) In how many ways the letters of the word "COMPUTER" be arranged , so that [4+4]
        i) all the vowels are together
        ii) all the vowels are not together
        ii) the relatives positions of the vowels and consonants are not changed?
    b) If $(1+x)^n=C_0+C_1x+C_2x^2+\cdots+C_nx^n$ prove that
    $C_0C_2+C_1C_3+C_2C_4+\cdots+C_{n-2}C_n=\frac{(2n)!}{(n+2)!(n-2)!}$

21. a) Using De-moirre's theorem and find the square roots of $-4-4\sqrt{3}\,i$. [4+4]
    b) Prove that : $\frac{1}{1!}+\frac{1+2}{2!}+\frac{1+2+3}{3!}+\frac{1+2+3+4}{4!}+\ \ldots\ldots=\frac{3e}{2}$.

22.a) Water flows into an inverted conical vessel at the rate of $24\ m^3/min$. When the depth of water is 4m , how fast is the level rising , assuming that the height of the vessel is 8m and the radius at the top is 2m ? [3+2+3]

    b) Using LHospital's rule , evaluate : $\lim_{x\to 0}\frac{x-sinx.cosx}{x^3}$.

    c) If the three consecutive coefficient in the expansion of $(1+x)^n$, be 165 , 330, 462 ; find n.

Best of luck

Milestone Int'l S.S./College

Balkumari, Lalitpur

First Terminal Exam- 2081

Subject: Mathematics

Grade: XII **Set-B** **F.M: 75**

Time: 3 hrs. **P.M: 30**

Candidates are required to give their answers in their own words as for as practicable. The figures in the margin indicate full marks.

Attempt all questions

Group A

Select the best alternatives from the followings **[11×1=11]**

19. There are 10 true-false questions. The number of ways in which they can be answered is :
    c) 10! b) 10 c) 10^2 d) 2^{10}
20. The number of terms in the expansion of $(a+x)^n$ where n is a positive integer , is
    a) $n-1$ b) n $c)$ $n+1$ d) $n+2$
21. The sum of all cube roots of unity is
    b) 0 b) 1 $c)$ -1 d) ∞
22. A system of linear equations $2x-7y=14$ and $4x-14y=28$ is
    b) consistent and dependent b) consistent and independent
    c) inconsistent and independent d) inconsistent and dependent
23. The system of equations can not be solved by Cramer's rule , if :
    b) $D_x=0$ b) $D_y=0$ c) $D_z=0$ d) $D=0$
24. The line $ax+by=c$ is normal to the circle $(x-1)^2+(y-1)^2=36$, if :
    b) $a+b=c$ b) $a=b$
    c) $a=c$ d) $a-b=c$
25. Using L' Hospital's rule , the value of $\lim_{x\to 0}\frac{x^2}{4sinx}=$
    $a)$ $\frac{1}{4}$ b) $\frac{1}{2}$ c) 1 d) 0
26. If $y=f_{(x)_1}$ then the approximate change in y is
    b) $dy=f^1(x)$ b) $dx=dy$
    c) $dy=f^1(x)dx$ d) $dy=[f(x+\Delta x)-f(x)]dx$
27. If the radius of a spherical balloon is increases at the rate of 1 cm/sec. At what rate is the volume of the balloon increasing when the radius is 1 cm ?
    c) $4\pi cm^3/sec$ b) $\frac{4}{3}\pi cm^3/sec$
    d) $\frac{3}{4}\pi cm^3/sec$ d) None of them
28. In how many ways 3 letters can be posted in 4 letter boxes ?
    b) 64 b) 24 c) 12 d) 48
29. The sum of the binomial coefficients in the expansion of $(1+x)^n$ is
    a) 0 b) 1 c) 2n d) 2^n

Group B **[8×5=40]**

30. a) From 6 gentlemen and 4 ladies, a committee of 5 is to be formed. In how many ways can this be done so as to include at least one lady? [2+3]
    b) If the coefficient of x in the expansion of $\left(x^2+\frac{k}{x}\right)^5$ is 270 , find K.
31. a) In the expansion of $(a+x)^n$, n is positive integer , answer the following: [3+2]
    iv) write the general term in the expansion of $(a+x)^n$.
    v) How many terms are there in the expansion of $(a+x)^n$.
    vi) Write the sum of all evev binomial coefficient in the expansion of $(1+x)^n$.

    d) Prove that : $\frac{1}{2}\left(e+\frac{1}{e}\right)=1+\frac{1}{2!}+\frac{1}{4!}+\frac{1}{6!}$ .....
32. a) For any positive integer n, [5]
    $[rcos\theta+isin\theta)]^n=r^n[cosn\theta+isin\theta)]$ answer the following :
    iv)Name the theorem for positive integer n.
    v) Reduce the given statement when we replace n by (-n).
    vi)what does r represent in the above statement ?
    vii) what does θ represent in the above statement ?
    viii) write any one application of the above statement ?

33. a) Express in polar form : $1+ i\sqrt{3}$. [2+3]

b) Show that $\sum_{n=1}^{\infty} \frac{n^2}{(n+1)!} = e - 1.$

34. a) Find the value of K , so that the line $4x + 3y + K = 0$ may touch the circle $x^2 + y^2 - 4x + 10y + 4 = 0.$ [2+3]

c) Using inverse matrix to solve : $2x + 3y = 13$, $3x + 5y = 21.$

35. a) Find the eccentricity and foci of the hyperbola $\frac{x^2}{9} - \frac{y^2}{16} = 1.$

b)Solve the system by using Cramer's rule : $x + 2y - z = -5$, $2x - y + z = 6$, $x - y - 3z = -3.$ [2+3]

36. a) Find the condition under which the line $y = mx + c$ is tangent to the parabola $y^2 = 4ax$. Also find the equation of the tangent in the slope form. [3+2]

b) Find the derivatives of $\boldsymbol{x}^{cosh^{2(x/a)}}$.

19. a) Find the equation to the hyperbola in standard form whose focus is at $(0, 5)$ and vertex at $(0, -3)$. [2+3]

b) Find the slope and inclination of the tangent to the curve $2y = 2 - x^2$ at $x = 1$.

Group C **[2+3+3]**

21. a) In how many ways the letters of the word "COMPUTER" be arranged , so that [4+4]

iii) all the vowels are together

iv)the vowels may occupy only odd position.

b) If $(1 + x)^n = C_0 + C_1x + C_2x^2 + \cdots \ldots + C_nx^n$ prove that

$$C_0C_n + C_1C_{n-1} + C_2C_{n-2} + \cdots . + . C_nC_0 = \frac{(2n)!}{n!n!}$$

21. a) Using De-moirre's theorem , find the square roots of $\frac{1}{2} + \frac{i\sqrt{3}}{2}$. [3]

b) Prove that : $\frac{\frac{1}{2!}+\frac{1}{4!}+\frac{1}{6!}+\cdots....}{\frac{1}{1!}+\frac{1}{3!}+\frac{1}{5!}+.....} = \frac{e-1}{e+1}$

22.a) A spherical ball of salt dissolving in water decreases its volume at the rate of 0.75 cm^3/min. Find the rate at which the radius of the salt is descreasing when its radius is 6cm. [3+2+3]

b) Using LHospital's rule , evaluate : $\lim_{x\to 0} \frac{e^x+e^{-x}-2cosx}{sin^2x}$.

c) Prove that : $\frac{1}{1.3} + \frac{1}{2.5} + \frac{1}{3.7} + \ldots\ldots\ldots\ldots\ldots\ldots = 2(1 - log2)$

माइलस्टोन इन्टरनेशनल इ.मा.वि/कलेज

बालकुमारी-९, ललितपुर

प्रथम त्रैमासिक परीक्षा-२०८१

कक्षा : १२ **समय : ३ घण्टा** **पूर्णाङ्क : ७५**

सङ्काय : विज्ञान **विषय :अनिवार्य नेपाली (समूह क)**

विद्यार्थीले दिएको सिर्जनात्मक र मौलिकउत्तरलाई अङ्गदिँदा बढी प्राथमिकतादिइनेछ ।

सबै प्रश्नहरू अनिवार्य छन् ।

१.निम्न लिखित शब्दहरूको अक्षर संरचना देखाई अक्षर सङ्ख्या समेत लेख्नुहोस् : (३)

सर्वप्रथम , गुणस्तरीय , शोभायुक्त

२. शुद्ध गरी पुनर्लेखन गर्नुहोस्: (३)

नेपाल बहुभासिक देस हो । प्रकितिक सौन्दर्यका दृष्टीले पनि नेपाल अनुपम छ । नेपाल पर्यटकहरुको उत्कृष्ट गन्तव्य पनि मानीन्छ ।

३. कुनै एक प्रश्नको उत्तर दिनुहोस् : (२)

(क) निम्नलिखित अनुच्छेदबाट दुईवटा अनुकरणात्मक शब्द पहिचान गरी वाक्यमा प्रयोग गर्नुहोस् :

झमझम पानी परिरहेको बेलामा छातासाता नओडी फटाफट हिडिरहेका विद्यार्थीलाई देखेर शिक्षक पनि मुसुमुसु हाँस्नुभयो ।

(ख) तलको अनुच्छेदबाट एउटा उखान र एउटा टुक्का पहिचान गरी वाक्यमा प्रयोग गर्नुहोस् :

आजभोलि विद्यार्थीहरु पढाइमा ध्यान दिँदैनन् अनि नाच्न जान्दैन आँगन टेढो भने झैं उत्तर लेख्न नजानेपछि प्रश्न नै गलत छ भन्छन् । यस्ता विद्यार्थीले त बाबु-आमाको नाकै काट्छन् नि ।

४. रेखाङ्कन गरिएका शब्दहरूको पदवर्ग पहिचान गरी लेख्नुहोस् : (३)

हर्षनारायनले सबैको सल्लाह बमोजिम पुतलीसँग विवाह गरे तर दाइजो भने केही ल्याएनन् । त्यो देखेर सबैले भने ,"बिहे त यस्तो पो हुनुपर्छ ।"

५.तलको अनुच्छेदबाट दुईओटा तत्सम र दुईओटा आगन्तुक शब्द पहिचान गरी लेख्नुहोस् :(२)

सञ्चार प्रविधिको विकासले संसार साँघुरिएको छ । हुलाक , रेडियो जस्ता माध्यम पुराना भइसके । आज इन्टरनेटले संसारलाई नियन्त्रण गरिसक्यो ।

६.कुनै एक प्रश्नको उत्तर दिनुहोस् : (३)

(क) तलका अनुच्छेदबाट तीनओटा उपसर्ग र तीनओटा प्रत्यय व्युत्पन्न शब्द पहिचान गरी तिनको निर्माण प्रकिया देखाउनुहोस् :

अमानवीय व्यवहार गर्ने र दुष्कर्म गर्नेहरुले सधैं अपमान मात्रै भोग्छन् । सदाचारीहरु घरेलु समस्यामा नअल्मलिई राष्ट्रिय हितमा लाग्छन् ।

(ख) तलको अनुच्छेदबाट तीनओटा समस्त शब्द र तीनओटा द्वित्व पहिचान गरी समस्त शब्दलाई विग्रह र द्वित्व शब्दको निर्माण प्रक्रिया देखाउनुहोस् :

घर भँडुवा र भाइमाराहरुलाइ देशनिकाला गर्ने कानुन नहुँदा भ्रष्टाचार गरी भटाभट कमाइरहेका छन् । राष्ट्रलाई ऋणमुक्त गर्ने हो भने भ्रष्टचारीलाई खुरुक्क जेल कोचौं । आआफ्ना कर्तव्य पूरा गरी मिहिनेत गरे घुससुस खानै पर्दैन ।

७. कुनै एक प्रश्नको उत्तर दिनुहोस् : (४)

(क) निम्न लिखित वाक्यहरुलाई सङ्गति मिलाई पुनर्लेखन गर्नुहोस् ।

बुवा विदेश गयो । दाइहरु विद्यालय जान्छ । बहिनी राम्ररी पढ्छ । उनीहरु कता जान्छ ?

(ख)उच्च आदरमा रुपान्तरण गरी पुनर्लेखन गर्नुहोस् : (४)

तिमी कहिले आयौ ? ऊ विद्यालयमा पढाउँदै छ । तिमीहरु अब सँगै विद्यालय जानू । त्यहाँ दाइले पढाउँदै छन् ।

८.कुनै एक प्रश्नको उत्तर दिनुहोस् : (४)

(क) चारवटा संभावनात्मक वाक्यमा आफ्नो भावी कार्ययोजना लेख्नुहोस् ।

(ख) तलका अनुच्छेदलाई करण भए अकरण र अकरण भए करणमा परिवर्तन गर्नुहोस् ।

पानी पऱ्यो भने जाडो हुन्छ । म आज खेल्न जान्न । बहिनी गीत गाउँछे । आज हामी घरमा रमाइलो गरौँला ।

९ .कुनै एक प्रश्नको उत्तर दिनुहोस् : (४)

(क) निम्न लिखित दुई वाक्यलाई विश्लेष्ण गरी चार वाक्य बनाउनुहोस् :

नेपालमा प्राकृतिक र सांस्कृतिक विविधता छ । नेपाल विविध जातिको वासस्थान भएको सुन्दर हो ।

(ख) तलका वाक्यहरूलाई तृतीय पुरुषमा परिवर्तन गर्नुहोस् :

म उच्चशिक्षा अध्ययन गर्छु । प्राविधिक दक्षता हासिल गर्छु । देशको उन्नतिमा लाग्छु । इज्जत कमाउँछु ।

१०.तलको अनुच्छेद पढी सोधिएका प्रश्नहरूको उत्तर दिनुहोस् : (५)

कविता विचार र भावनाको लयबद्ध कलात्मक अभिव्यक्ति हो । यसैले कविताको संरचनामा विचार , भावना , लय र भाषा संरचकका रुपमा रहेका छन् । यी तीन संरचक मध्ये विचार , भावना र भाषा साहित्यका अन्य विधाकथा , उपन्यास निबन्ध आदिमा पनि रहन्छन् । कथा ,उपन्यास निबन्ध आदिमा पनि रहन्छन् । यसैले विचार एवं भाषा सबै बिधाका साझा संरचक हुन् भने लय चाहिं कवितामा मात्र रहने भएकाले यो कविताको परिचनयक संरचक हो । लयकै कारण कविता गाउन मिल्ने (गंयात्मक)हुन्छ । लय कै आधारमा कविता गद्य , पद्य र लेक कविता गरी तीन प्रकारका हुन्छन् । गजल र गीत पनि पद्य कविताकै भेद हुन् । मुक्तक पनि कविताकै लघु रुप हो । मुक्तक आफैंमा पूर्ण श्लोक हो । गद्य कविता गीत र गजल लयबद्ध रचना हुन् । लोकगीत र लोक कविता चाहिं लोक लयमा रचनागरिन्छ । पद्य कविता र गजललाई छन्दोबद्ध कविता पनि भनिन्छ ।

प्रश्नहरू :

(क) कविताका संरचकहरु के-के हुन्?

(ख) कविता र अन्यविधामा पाइने साझा तत्त्व के-के हुन् ?

(ग) कविताको परिचायक तत्त्व के हो ?

(घ) पद्य र गद्यकवितामा के फरक छ?

(ङ) मुक्तक कस्तो विधा हो ।

११.तलको अनुच्छेद पढी मुख्यमुख्यचार बुँदा टिपोट गर्नुहोस् र एक तृतीयांशमा सारांश गर्नुहोस् : (२ + ३)

जीवनको कुनै उद्देश्य हुन्छ । बाँच्नुको अर्थ हुन्छ र गर्नुको कुनै आशय हुन्छ । यही अर्थ र आशयको समष्ठी नाउँ नै जीवन हो । साहित्यमा यही जीवनको अभिव्यक्ति हुन्छ । साहित्यका विविध , विधामा अभिव्यक्ति र प्रस्तुतिको विविधताको एउटा रुप उपन्यासमा जीवनकै अभिव्यक्ति हुन्छ । यसै पृष्ठभूमिमा जीवन र साहित्यलाई अलग गर्न सकिन्न । त्यसैले उपन्यासको कुनै अर्थ हुन्छ र आशय हुन्छ । उपन्यासकारको जीवनप्रतिको अभिव्यक्ति प्रस्तुतिगर्ने आधार चरित्रचित्रण, लेखको टिप्पणी र घटना हो । यति भएर पनिउपन्यासकारको आफ्नो सोचाइ र हेराइको आफ्नै धरातल हुन्छ । यसरी उपन्यासमा लेखकको आफ्नो सोचाइ र हेराइ प्रत्यक्ष वा परोक्ष रुपमा अभिव्यक्त भएको हुन्छ ।

१२. कुनै एक प्रश्नको उत्तर दिनुहोस् : (४)

(क) काठमाण्डौ उपत्यकामा जनजीवनमा परेको असरका बारेमा सम्बन्धित निकायको ध्यानाकर्षण गराउँदै एक दैनिक पत्रिकाका सम्पादकलाई चिठी लेख्नुहोस् ।

(ख) तपाईंको वार्डमा वडा कार्यालयले पोलियो-थोपा खुवाउने सम्बन्धी सूचनाको नमुना तयार पार्नुहोस् ।

१३. कुनै एक प्रश्नको उत्तर दिनुहोस् : (५)

(क) नारायणी पुस्तक पसल हेटौंडाले भर्खरै प्रकाशित सन्दर्भ पुस्तकहरुको माग गर्दै साझा प्रकाशनलाई लेख्ने चिठीको नमुना तयार पार्नुहोस् ।

(ख) कुनै एक उद्योगले उत्पादन गरेको वस्तुको बजार प्रवर्द्धन लागि बनाइने विज्ञापनको नमूना बनाउनुहोस् ।

१४. कुनै एक उद्धरणको व्याख्यागर्नुहोस् : (४)

(क) "यो हिउँ मेरो थियो , मेरो मुटुको थियो र हिमाली हार्दिकता बोकेको र चम्किलो थियो ।"

(ख) नारी प्रेम र सङ्घर्षका प्रतिमूर्ति हुन् ।

१५. कुनै एक प्रश्नको उत्तर दिनुहोस् : (४)

क. तलको कवितांश पढी सोधिएको प्रश्नको उत्तर लेख्नुहोस् :

"हो तिमी जन्मँदा तिम्रो कलिलो अनुहारमा
त्यसकै छाया देख्ने आशा गरेकीथिएँ
त्यो हिस्सी परेको हँसाइमा त्यसैको सुन्दर छवि
तिम्रो तोते बोलीमा त्यसैको मधुर ध्वनि
तर त्यो मिठो गीतले तिमीलाई
आफ्नो बाँसुरी बनाएनछ
त्यो तिमी नै हौलाभन्ने
मेरो यौवन भरीको सपना थियो ।"

प्रश्नहरू :

अ.आमाको सपना के थियो?

आ."त्यो मिठो गीतले तिमीलाईबाँसुरी बनाएनछ"?भन्नुको तात्पर्य के हो ?

(ख) तल दिइएको नियात्रांश पढी सोधिएका प्रश्नको उत्तर दिनुहोस्:

टाउकामा चिप्लो न चिप्लो बरफको केश फुलाएर आफ्नो वृद्ध शरीरमा काला रुखका भुत्ला ठड्याई यो घनघस्या गजधुम्म परेर बसेको छ । यो मान्छेहरुसित रिसाएको छ , अग्घकेरै रिसाएको छ , अघोरीगाड जत्तिकै रिसाएको छ अनि पोखरेली सेती जत्तिकै रिसाएको छ । सेती नदी पृथ्वीको पेटमा भासिदै जाओस् , यो चाहिँ ठडिएको ठडियै छ । यसले कहिल्यै त टोको झुकाउला कि भनेर मैले निरीक्षण गरिहेरँ तर त्यस्तो लक्षण कतै देखिएन । यो झनझन दृढ हुँदै गइरहेको पो मैले पाएँ ।

प्रश्नहरु:

क) सेती नदी र घनघस्याका बिच समानता र भिन्नता के के हुन?

ख) घनघस्यालाई कसरी मानवीकरण गरिएको छ ?

१६. कुनै एक प्रश्नको उत्तर दिनुहोस् : (४)

(क) दमयन्तीले आफ्नो उद्देश्य पूरा गर्न कस्तो सङ्घर्ष गरिन् ?

(ख) निल आर्मस्ट्रङ्लाई चन्द्रमामा पुग्न किन फिटफिटी परेन ?

१७. कुनै एक प्रश्नको समीक्षात्मक उत्तर लेख्नुहोस् : (८)

(क) हकिङ्ले मानवीय चेतनालाई नयाँ उचाइमा पुऱ्याउन गरेका योगदानको समीक्षा गर्नुहोस् ।

(ख) आमाको सपना के हो र त्यो कसरी पूरा हुन्छ ? 'आमाको सपना' कविताका आधारमा समीक्षात्मक उत्तर दिनुहोस् ।

१८. कुनै एक शीर्षकमा २५० शब्दसम्मको निबन्ध लेख्नुहोस् : (८)

(क) पृथ्वी बचाऔँ

(ख) भ्रष्टाचार मुक्त देश

(ग) सामाजिक सञ्जालको सदुपयोग

माइलस्टोन इन्टरनेशनल इ.मा.वि/ कलेज

बालकुमारी-९, ललितपुर

प्रथम त्रैमासिक परीक्षा-२०८१

कक्षा : १२ **समय : ३ घण्टा** **पूर्णाङ्क : ७५**

सङ्काय : विज्ञान **विषय: अनिवार्य नेपाली (समूह ख)**

विद्यार्थीले दिएको सिर्जनात्मक र मौलिक उत्तरलाई अङ्ग दिँदा बढी प्राथमिकता दिइने छ ।
सबै प्रश्नहरू अनिवार्य छन् ।

१. तल अनुच्छेदमा रेखाङ्कन गरिएका शब्दहरूको अक्षर संरचना देखाई अक्षर सङ्ख्या समेत लेख्नुहोस् : (३)

अनेकतामा पनि सहिष्णुता र एकता हुन्छ । शिक्षाको विकासले अन्धविश्वास कुरीति निर्मूल हुन्छन् । संस्कृतिका नाममा भएका विकृति हट्दै जान्छन् ।

२. तलका अनुच्छेदलाई शुद्ध गरी पुनर्लेखन गर्नुहोस्: (३)

मैले आजको अन्तीम प्रश्न भन्दै उनलाई सोधे उद्यम गर्न चाहनेहरूलाई के शुझाव दिनुहुन्छ ? उनले उद्यमीलाई अरुप्रति समर्पित हुनुपर्ने वताए

३. कुनै एक प्रश्नको उत्तर दिनुहोस् : (२)

(क) तलको अनुच्छेदबाट दुइवटा अनुकरणात्मक शब्द पहिचान गरी तिनको प्रयोग गरेर एक एकओटा वाक्य बनाउनुहोस् :

उनले आँखा तरेपछि छोराछोरीहरू लुरुलुरु बाहिर निस्किए । मन चटक् चटक् भयो । उनी चलचित्र हेर्न चाहन्थे । म निर्जीव जस्तै सुनेको नसुनेकै गर्दा उनी लुरुक्क फर्केर जान बाध्य भए । मनोविज्ञानमा क्रुरता र सहृदयताको प्रतीक बन्न सक्ने भाव कस्तो होला ?

(ख) तलको अनुच्छेदबाट एउटा उखान र एउटा टुक्का पहिचान गरी तिनको प्रयोग गरेर एक एक ओटा वाक्य बनाउनुहोस् :

मैले 'मुनामदन' पढिरहँदा हजुरआमा ट्वाल्ल परेर सुनिरहनुहुन्थ्यो । उहाँलाई काला अक्षर भैंसी बराबर थिए । मन पग्लेको बेला उहाँ रुनुहुन्थ्यो अरू भावुक हुन्थे । आगो ताप्नु मुढाको कुरा सुन्नु बुढाको भने झैं उहाँका अनुभवी विचारबाट सबैको घैंटोमा घाम लाग्थ्यो ।

४. तलको अनुच्छेदमा रेखाङ्कन गरिएका पदहरूको पदवर्ग पहिचान गरी लेख्नुहोस् : (३)

जीवनमा असफल हुन कोही पनि चाहन्नन् तर सफल हुनलाई असफलतालाई पनि स्वीकार गर्न सक्नुपर्छ । एउटा काम गरिरहेको मान्छेले अर्को काममा हात हाल्दा असफल हुने सम्भावना प्रबल हुन्छ भनी उनले भने ।

५. तलको अनुच्छेदबाट दुईओटा समस्त शब्द र दुईओटा आगन्तुक शब्द पहिचान गरी लेख्नुहोस् : (२)

महान् वैज्ञानिक थोमस एल्भा एडिसनले विद्युतीय चिमको आविष्कार गरे । विश्वप्रसिद्ध सेठ गोडिनले अठारपटक उत्कृष्ट किताव निकाल्न सके । नोबेल पुरस्कार पाउनेले मजदुर झैं काममा जिन्दगी समर्पित गरेको हुन्छ ।

६. कुनै एक प्रश्नको उत्तर दिनुहोस् : (३)

(क) तलका उपसर्ग र प्रत्यय लगाई एक एक शब्द निर्माण गर्नुहोस् :

उपसर्ग : कु, बद ,परा

प्रत्यय : ईय ,ता , आलु

(ख) तलको अनुच्छेदबाट तीनओटा समस्त शब्द र तीनओटा द्वित्व ब्युत्पन्न शब्द खोजी तिनको निर्माण प्रक्रिया देखाउनुहोस् :

पीताम्बर र चक्रपाणिले देशहितका काममा लागी आआफ्नो कर्तव्य पूरा गरे । देश परदेश पुगेर आआफूमा सरसहयोग आदानप्रदान गरी सदा साथ रहे । उनीहरूले गरेका कामका बारेमा छरछिमेकीहरू घरघरमा मुक्तकण्ठले उनको प्रशंसा गर्ने गर्दछन् ।

७. कुनै एक प्रश्नको उत्तर दिनुहोस् : (४)

(क) ले, लाई , बाट ,द्वारा ,देखि , को , मा, नो विभक्तिहरूको प्रयोग गरी आफूले भ्रमण गरेको रमणीय स्थानको चार वाक्यमा वर्णन गर्नुहोस् ।

(ख) तलको अनुच्छेदका वाक्यलाई उच्च आदरमा परिवर्तन गर्नुहोस् : (४)

उनीहरू खप्तड पुग्छन् । उनीहरू राष्ट्रिय निकुञ्जमा घुम्छन् । त्यहाँ उनीहरूका साथीहरू पनि भेटिन्छन् । दुई हप्ताको भ्रमणपछि उनीहरू घर फर्किन्छन् ।

८. कुनै एक प्रश्नको उत्तर दिनुहोस् : (४)

(क) सामान्य भविष्यत् कालका क्रियापदको प्रयोग गरी आफ्नो भावी योजनाको वर्णन गर्नुहोस् ।

(ख) तलको अनुच्छेदका वाक्यहरूलाई सङ्गति मिलाई पुनर्लेखन गर्नुहोस :

म बिहान सबैरै उठ्छन् । हाम्रो घरमा मेरी मामा आउँछ । मामालाई भेटेर मेरो बहिनी धेरै खुसी हुनुहुन्छ । हामी तीनैजना भेला भएर फूलबारीमा घुम्न जान्छस् ।

९ . कुनै एक प्रश्नको उत्तर दिनुहोस् : (४)

(क) तलका वाक्यहरूलाई एउटै वाक्यमा संश्लेषण गर्नुहोस् :

गाउँको आल्टा खाडीमा अस्ताउन लागेको सूर्यबिम्ब पऱ्यो । त्यसले गर्दा खाडीको पानी नै रातो भइरहेको थियो । आल्टा खाडीमा देखिएको त्यो दृश्य साँच्ची नै अनौठो थियो । त्यो अनौठो दृश्य देखेर मानिसहरू दङ्ग परे ।

(ख) तलका वाक्यहरूलाई आठओटा सरल वाक्यमा विश्लेषण गरी गर्नुहोस् :

तिमी विदेश नजाऊ किनकि आफ्नै देशमा अवसर पाइन्छ । तिमी विदेश जान्छौ भने कुनै सिप सिकिसकेपछि जाऊ । तिमी विदेशमा नयाँ प्रविधि सिक अनि स्वदेश फर्क । जब तिमी विदेश जान्छौ तब तिम्रो परिवार एक्लो हुन्छ ।

१०. तलको अनुच्छेद पढी सोधिएका प्रश्नहरूको उत्तर दिनुहोस् : (५)

जीवको विकासमा विभिन्न सुधारहरू भए, सर्वप्रथम हड्डी नभएका जनावरहरू थिए तर तिनीहरू लामो समयसम्म बाँच्दैनथे तसर्थ हड्डीको विकास भयो । सबैभन्दा पहिले ढाडको हड्डी विकास भयो । यसरी जनावर विभाजित भए - हड्डी भएका र नभएका जनावर । मानिस र जनावरहरू हड्डी भएका जनावर हुन् । हाम्रा वरिपरि अनेकौं जनावरहरू छन् । माछा, भ्यागुता आदिले फुल पार्छन् र त्यत्तिकै छोडिदिन्छन् । तिनीहरूले एकपटकमा हजारौं फुल पार्छन् । फुलको सुरक्षा नगर्ने हुनाले तिनीहरूका धेरैजसो फुलहरू नष्ट हुन्छन् , केही मात्र पैदा हुन्छन् ।

विकसित जनावरहरूले थोरै बच्चा पैदा गर्दछन् । तिनले आफ्ना बच्चाको राम्रोसँग हेरचाह गरेका हुन्छन् । कुखुराको पोथीले फुल पारेर सुरक्षित राख्न आफ्नो शरीरले छोप्छ । यही प्रक्रियाबाट चल्ला जन्मन्छ । चल्ला उत्पादन गरिसकेपछि त्यसलाई केही समयसम्म चारो खुवाउँछ । जब चल्ला बढ्छ तब पोथीले स्वतन्त्र रूपमा छोड्छ ।

स्तनधारी जनावरहरूले फुल पार्दैनन् । तिनीहरूले फुल आफ्नो शरीरभित्रै राख्छन् र निश्चित समयपछि विकसित बच्चालाई जन्म दिन्छन् । मानिस पनि यसै वर्गमा पर्दछ । चमेरो, मुसो, बिरालो , कुकुर , खरायो , गाई , बाख्रो आदिलाई उदाहरणका रूपमा लिन सकिन्छ । बच्चालाई जन्म दिएपछि यिनीहरूले दूध चुसाउँछन् । आमाले बच्चा नहुर्केसम्म राम्ररी स्याहार सुसार गर्छन् ।

प्रश्नहरू :

(क जीवमा कसरी हड्डीको विकास भयो ?

(ख) माछा, भ्यागुताका धेरै फुलहरू किन नष्ट भएका हुन् ?

(ग) कुखुराको पोथीले कसरी बच्चा जन्माउँछ?

(घ) स्तनधारी जनावरले कसरी बच्चा हुर्काउँछ ?

(ङ)माथिको अनुच्छेदका आधारमा प्राणीमा हुने दुईओटा प्रमुख विशेषता टिपोट गर्नुहोस् ।

११. तलको अनुच्छेद पढी मुख्य मुख्य चार बुँदा टिपोट गर्नुहोस् र एक तृतीयांशमा सारांश गर्नुहोस् : **(२ + ३)**

विज्ञानको उन्नतिले मानव सभ्यतालाई शिखरमा पुऱ्याउन ठुलो योगदान दिएको छ । उन्नतिको क्रम कहिल्यै रोकिदैन , कहिल्यै तोडिदैन । विज्ञानका क्षेत्रमा नयाँ नयाँ खोजहरू भई नयाँ नयाँ उपलब्धिहरू प्राप्त भइरहेका छन् । जीवन अहिले बढी संश्लिष्ट छ तापनि बढी सुविधायुक्त पनि हुँदै गइरहेको छ । केही हदसम्म मानिसले प्रकृतिलाई बुझ्न सफल भएको छ भने अझै धेरै हदसम्म बुझ्न बाँकी पनि छ । अब त प्रकृतिका गल्तीलाई उसले बुझ्न थालेको छ । ती गल्तीहरूलाई उसको पिँधसम्म नै पुगेर त्यसलाई सच्याउने काममा पनि वैज्ञानिकहरू लाग्न थालेका छन् । उनीहरूले त्यसमा उत्साहजनक सफलता पनि प्राप्त गर्न थालेका छन् । आनुवंशिक अभियान्त्रिकीका क्षेत्रमा पाएको उपलब्धिले नयाँ आशा र नयाँ परिणतिहरूका साथै नयाँ आशङ्काहरू पनि जन्माएको छ ।

१२. कुनै एक प्रश्नको उत्तर दिनुहोस् : **(४)**

(क) काठमाण्डौ उपत्यकामा खानेपानीको अभावले पारेको असरका बारेमा सम्बन्धित निकायको ध्यानाकार्षण गराउँदै एक दैनिक पत्रिकाका सम्पादकलाई चिठी लेख्नुहोस् ।

(ख) कक्षा १२ का विद्यार्थीलाई एक दिने शैक्षिक भ्रमण लैजाने विषयमा विद्यालयका प्रधानाध्यापकले जारी गर्ने सूचनको नमुना तयार पार्नुहोस् ।

१३. कुनै एक प्रश्नको उत्तर दिनुहोस् : **(५)**

(क) अस्मिता प्रकाशन काठमाण्डौले नारायणी पुस्तक पसल नारायणघाटले माग गरे बमोजिमका पाठयपुस्तक पठाइएको व्यहोरा खुलाई एउटा चिठी लेख्नुहोस् ।

(ख) कुनै एक साबुन उद्योगले उत्पादन गरेको साबुनको बजार प्रवर्द्धन गर्नका लागि बनाइएको विज्ञापनको नमुना तयार पार्नुहोस् ।

१४. कुनै एकको व्याख्या गर्नुहोस् : **(४)**

(क) "यो हिउँ मेरो थियो , मेरो मुटुको थियो र हिमाली हार्दिकता बोकेको र चम्किलो थियो ।"

(ख) "हो, त्यो आउँछ,
त्यो बिहानको सूर्य झैं उज्यालो छर्दै आउँछ
अब म उठें , गएँ तर त्यो तिमी नै होला भन्ने
मेरो यौवनभरिको सपना थियो ।"

१५. कुनै एक प्रश्नको उत्तर दिनुहोस् : **(४)**

क. तल दिइएको कवितांश पढी सोधिएका प्रश्नको उत्तर दिनुहोस् :

आमा , त्यो आउँछ र ?
"हो ,बा, त्यो आउँछ
त्यो बिहानको सूर्य झैं उज्यालो छर्दै आउँछ ।
त्यसको कम्मरमा झुन्डिएको शीत जस्तै टल्कने
तिमी एक हतियार देख्ने छौ"

प्रश्नहरू :

अ.क्रान्ति कसरी आउँछ ?

आ."त्यसको कम्मरमा झुन्डिएको शीत जस्तै टल्कने तिमी एक हतियार देख्ने छौ" भन्नाले के कुरालाई सङ्केत गरिएको छ ?

(ख) तल दिइएको कथांश पढी सोधिएका प्रश्नको उत्तर दिनुहोस्:

नागयुवक दुष्टात्मा हो भन्ने कुरा त त्यसको कामुक आँखा र स्वरबाटै दमयन्तीले बुझिसकेकी थिइन् । उनले आफ्नो रक्षाका निम्ति उपाय खोज्न आफूलाई शान्त र संयत राखिन् । आफ्नो दुःख व्यथा बारे बताउन थालिन् । नागयुवकलाई आफ्नो कथा बताउँदा नलले जङ्गलको बाटो बिराएको र हराएको कुरा मात्र गरिन् । "यसको पति नल हरायो । वन एकान्त छ , त्यहाँका नाग नरनारीलाई यस्ती सुकुमारीलाई मैले नगरबाट हरण गरी ल्याएको हुँ भनी आफ्नो बहादुरीको बखान गरेर आफ्ना गाउँलेलाई प्रसन्न तुल्याउने छु , यी नारी मेरी भइसकिन् ।

प्रश्नहरू :

अ. दमयन्तीले नागयुवकलाई किन आफ्नो दुःख व्यथा बताइन् ?

आ. दमयन्तीको नागयुवकसँग कसरी भेट भएको थियो ?

१६. कुनै एक प्रश्नका उत्तर दिनुहोस् : **(४)**

(क) निल आर्मस्ट्रङ्लाई चन्द्रमामा पुग्दा किन फिटफिटी परेन ।

(ख) हकिङ्ले कस्ता समस्यासँग सङ्घर्ष गर्नु परेको थियो ?

१७. कुनै एक प्रश्नका उत्तर दिनुहोस् : **(८)**

(क) आफ्नो दृढ सङ्कल्प पूरा गर्न मानिस जस्तासुकै भयानक सङ्घर्ष गरेर अगाडि बढ्न तत्पर हुन्छ भन्ने कुरा 'विरहिणी दमयन्ती' कथाका आधारमा पुष्टि गर्नुहोस् ।

(ख) ' घनघस्याको उकालो काट्ता ' नियात्रामा अभिव्यक्त राष्ट्रप्रेमको आदर्श विचार सम्बन्धमा प्रकाश पार्नुहोस् ।

१८. कुनै एक शीर्षकमा २५० शब्दसम्मको निबन्ध लेख्नुहोस् : **(८)**

(क) समृद्ध राष्ट्रनिर्माणमा युवावर्गको भूमिका

(ख) आत्मानुशासन

(ग) सामाजिक सञ्जालको सदुपयोग

Milestone Int'l S.S./College

Balkumari, Lalitpur

First Terminal Exam- 2081

Subject:Physics

Grade: XII **Set:A** **F.M: 75**

Time: 3 hrs. **P.M: 27**

Candidates are required to give their answers in their own words as for as practicable. The figures in the margin indicate full marks.

Group:A

Very short answer question **(1 *11=11)**

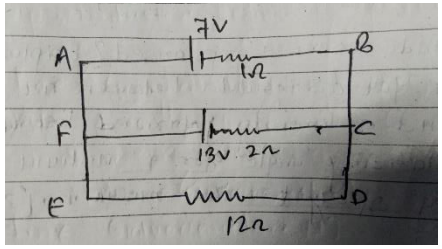
1. A quantity analogous in rotational motion is analogous to force in linear motion
   a) Torque b) moment of inertia
   c) angular velocity d) angular momentum
2. A particle undergoes SHM having time period T. what is the time taken to move from mean position to half of the amplitude?
   a) T/2 b) T/3 c) T/6 d) T/12
3. The frequency of tunning fork is 384 Hz and velocity of sound in air is 352 m/s. How far the sound has transversed while the fork complete 36 vibrations?
   a) 72m b) 352m c) 36m d) 33m
4. An electron is revolving on a circular path of radius r with speed v in a transverse magnetic field B. the e/m will be
   a) v/rB b) B/rv c) Brv d) vr/B
5. The strength of photoelectric current is directly proportional to
   a) frequency b) intensity c) angle of incidence
   d) distance between cathode and anode
6. The correct expression of Bragg's law is nλ =
   a) d sin Θ b) d cos Θ c) 2d sin Θ d) 2d cos Θ
7. Kirchoff's voltage law is based on conservation of
   a) charge b) mass c) energy d) linear momentum
8. The torque produced on a rectangular coil is
   a) BINA b) BINA cos Θ c) BINA sin Θ d) none
9. What type of vibrations are produced in a sitar wire?
   a) progressive, transverse b) progressive longitudinal
   c) transverse, stationary d) longitudinal, stationary
10. Plank's constant has dimensions of
    a) energy b) mass c) frequency d) angular momentum
11. A group of notes which is integral multiple of fundamental notes is called
    a) semi node b) harmonics c) beats d) overtones

Group B (8 X 5 = 40)

12. a. Define a couple of forces. 1
    b. Derive the expression for the work done by a couple and power produced. 2
    c. A constant torque of 1000 Nm turns a wheel of moment of inertia 200 kgm² about an axis through its center. What is its angular velocity after 3 secs? 2
13. A. Define free oscillation. 1
    B. If a simple pendulum is taken to the moon, will it gain or lose time? 2
    C. A simple pendulum 4 cm long swings with an amplitude of 0.2 m. Compute the velocity of the pendulum at its lowest point and its acceleration at extreme ends. 2

    OR

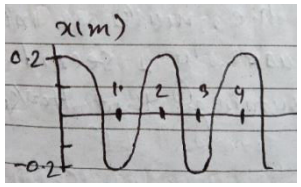
    A. Draw a neat well-labelled diagram of Millikan's oil drop experiment for determination of charge on the electron. 2
    B. How do you find charge on an electron in Millikan's experiment? 3
14. a. What is progressive wave? 1
    b. How the stationary waves are formed? 1
    c.A wave has equation, y=0.02 sin (30t-4x), Where x is in meters and t is in seconds. Find its frequency, speed and wavelength. 3
15. A. Does the velocity of sound in air depend on pressure? Explain. 1
    B. Explain how velocity of sound is temperature dependent. 2
    C.A source of sound of frequency 550 Hz emits waves of wavelength 600 mm in air at 20^0C. What is the velocity of sound in air at this temperature? What would be the wavelength of sound from the source at 0^0C?2
16. A. What is an organ pipe? 1
    B. What are the two characteristics of vibration in an open organ pipe? 2
    C. the frequency of the fundamental note of an open pipe is double than that of closed organ pipe. Prove it. 2
17. A. State Kirchoff's Law of Current. 1
    B. On which principle is it based? 1
    C. Find out current through each of the branches of the given circuit and difference across 12Ω resistance. 3



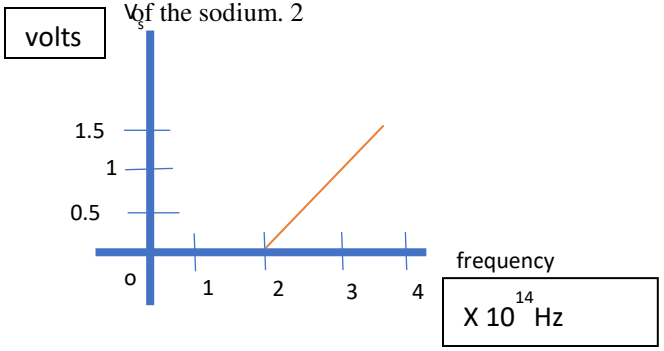
18. A. write the expression for the wave number in the hydrogen atom. 1
    B. define excitation potential and ionization potential. 1
    C. Find the wavelength and frequency of 3rd member of lyman series. 3
19. A. What is threshold frequency? 1
    B. Derive Einstein's photoelectric equation. 2
    C.Define photoelectric work function. How is it related to threshold frequency? 2

Group C (8 X 3 =24)

20. A. Define damped oscillation.1
    B. Differentiate between SHM and ASHM. 2
    C. Displacement of an oscillating object as a function of time is shown in the figure. Calculate i) time period ii) frequency and amplitude



    D. find the length of the second pendulum on the surface of the earth. 2
21. A. what are photons? 1
    B. what happens to photocurrent when intensity of photon is increased? Explain. 2
    C. what do you mean by work function of a material? 1
    D. The adjacent figure shows a plot of stopping voltage versus frequency of incident radiation for photoelectric effect in sodium,
    i) Find the value of plank's constant from the graph. 2
    ii) Calculate the threshold frequency and work function of the sodium. 2



22. A. Define Lorentz force with its expression. 1
    B. Can a charged particle move through magnetic field without experiencing any force? Explain.2
    C. How do you distinguish the directions of Lorentz force experienced by a positive charge? Explain with figure. 2
    D. A straight horizontal rod of length 20 cm and mass 30 gm is placed in a magnetic field perpendicular to rod. If a current of 2 A through the rod makes itself self-supporting in the magnetic field. Calculate the magnetic field. 3

OR

A. how stationary wave are formed in an organ pipe? Explain. 1
B. Define overtones. 1
C. Find out 1st and 2nd overtones of closed organ pipe with the help of proper diagrams. 2 + 2
D. How the fundamental mode of closed organ pipe will change if length is doubled? Explain. 2

Milestone Int'l S.S./College

Balkumari, Lalitpur

First Terminal Exam- 2081

Subjet:Physics

Grade: XII **Set:B** **F.M: 75**

Time: 3 hrs. **P.M: 27**

Candidates are required to give their answers in their own words as for as practicable. The figures in the margin indicate full marks.

Group:A

Very short answer question **(1 *11=11)**

1. The moment of inertia of a body of mass M about a given axis is I. What is the radius of gyration?
   a) I/M b) IM c) $\sqrt{I/M}$ d) $\sqrt{IM}$
2. Two simple harmonic motions are given by x=a sin (wt)nd x =b cos(wt) respectively. The phase difference between them, in radians, is:
   a) π b) π /2 c) π/4 d) 0
3. Which one of the following represents progressive wave?
   a) y=A Sin (kx) b) y = A Sint
   c) y= A Cos (at-bx+c) d) none of these
4. An electron is moving along positive X-direction and the magnetic field is along positive Y-direction. Then the motion of the electron is:
   a) Straight b) Circular motion in XY
   c) Circular motion in YZ d) Circularmotion inXZ
5. The kinetic energy of photoelectrons is directly proportional to
   a) frequency b) intensity c) angle of incidence d) distance between cathode and anode
6. The intensity of continuous X-ray and characteristics X-rayare
   a) high and low b) low and high c) equal d) not fixed
7. In meter bridge experiment, the ratio of the left gap resistance to right gap resistance is 2:3, the balance point from the left is
   a) 60cm b) 50cm c) 40 cm d) 30cm
8. The ratio of the radius of the Bohr's first orbit to that of second orbit is
   a) 2:1 b) 4:1 c) 1:4 d) 1:8
9. The speed of sound in air is 350 m/s. The fundamental frequency of an open pipe of length 50 cm is
   a) 100 Hz b) 250 Hz c) 350 Hz d) 400 Hz
10. The quality of X-ray is controlled by maintaining,
    a) Current b) Intensity c) frequency d) Potential difference
11. The notes higher than fundamental notes are called
    a) semi node b) harmonics c) beats d) overtones

Group B (8 X 5 = 40)

12. A. Define torque with its expression. 1
    B. Derive the expression for moment of inertia of thin uniform rod. 2
    C. An electric fan is turned off, and its angular velocity decreases uniformly from 500 rev/min to 200 rev/min in 4 seconds. Find angular acceleration and number of revolutions made by the fan in 4 seconds.2
13. A. Define forced oscillation. 1
    B. Derive time period for the vertical mass spring system. 2
    C. The amplitude of a particle executing SHM with a frequency of 60 Hz is 0.01 m. Determine the maximum value of the acceleration of the particle. 2

    OR

    A. An electron and proton having the same initial velocity are projected in a uniform magnetic field. Whose path will have more curvature and why? 2
    B. discuss the nature of the path of an electron projected perpendicularly to an electric field with proper calculation? 3
14. A. What are the properties of the medium required for the propagation of sound wave? 1
    B. Can a transverse wave be produced in air? Explain 1
    C. Given below is the equation of the progressive wave, where t is in seconds and distance x in meters; y= 8cos 240(t-x/312).
    Find i) the velocity of the wave ii)frequency
    iii)phase difference between two points 0.50 m apart. 3
15. A. What are the factors affecting velocity of sound in air?1
    B. Why are sounds heard better on a wet day than on a dry day?1
    C. If a detonator explodes on a railway line, an observer standing on the rail 2 Km away hears two reports. What is the time interval between these reports?**Y**of a steel is $2x10^{11}$ N/m^2, density of air is 1.4 kg/m^3, γ of air is 1.4, atmospheric pressure is 10^5N/m^2 and density of steel is $8x10^3$ kg/m^3.3
16. A. What is an end correction?1
    B. What are the two characteristics of vibration in a closed organ pipe? 2

    C. The length of an open pipe is 0.5 m. Calculate the fundamental frequency of the pipe if the velocity of the sound in air is 350 m/s.2

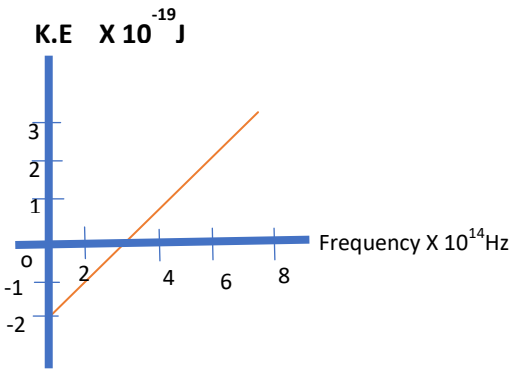
17. A.What is the application of Wheatstone? 1
B. In which condition does it work? 1
C. The emf of a battery A is balanced by a length of 75cm on a potentiometer wire. The standard cell of 1.02v is balanced by a length of 50cm. What is the emf of cell A? 3
18. A. what are emission spectra? 1
B. What would be the ionization energy of an electron of first orbit of hydrogen atom? Calculate in ev. 1
C. Find the wavelength and frequency of 2nd member of Balmer series. 3
19. A. What is photoelectric effect? 1
B. Discuss the nature of graph between stopping potential and frequency of incident photon with proper physical equation. 2
C.The threshold frequency for a certain metal is 3.3×10^{14}Hz. If the light of frequency 8.2×10^{14}Hz is incident on the metal, predict the cut-off voltage for photoelectric emission.2

Group C (8 X 3 =24)

20. A. Define forced oscillation.1
B. If the displacement of particle executing SHM is $y = r \sin(\omega t)$, then find its velocity at any displacement y. 2
C.A small bob of 50 gm oscillates as a simple pendulum with an amplitude 5 cm and time period of 2 sec. Find the velocity of the bob and the tension in the supporting thread when the velocity of the bob is maximum. 3
D. show that for a particle executing SHM, the maximum potential energy is the same as that of maximum kinetic energy which is equal to total energy. 2
21. A. what are photoelectrons? 1
B. what happens to photocurrent when frequency of photon is increased? Explain. 2
C. what do you mean by stopping potential? 1
D. The adjacent figure shows a plot of K.E versus frequency of incident radiation for photoelectric effect in sodium,

ii) Find the value of plank's constant from the graph. 2

iii) Calculate the threshold frequency and work function of the sodium. 2



22. A. what are photoelectrons? 1
B. what happens to photocurrent when frequency of photon is increased? Explain. 2
C. what do you mean by stopping potential? 1
D. The adjacent figure shows a plot of K.E versus frequency of incident radiation for photoelectric effect in sodium,

i) Find the value of plank's constant from the graph. 2

23. Calculate the threshold frequency and work function of the sodium. 2
A. Write the expression for the force on a charge 'q' moving with the velocity v in a magnetic field B. 1
B Discuss the case when the force is maximum and minimum.2
C. derive an expression for the force on a current carrying conductor of length l in magnetic field B.2
D. The plane of a 5.0 cm x 8.0 cm rectangular loop of a wire is parallel to a 0.19 T magnetic field. The loop carries a current of 6.2A. What torque acts on the loop?3

OR

A. write one characteristic of transverse vibrations produced on a stretched string? 1
B. Define harmonics. 1
C. find out 1st and 2nd overtones of open organ pipe with the help of proper diagrams. 2 + 2
D. If the frequency of a fundamental note of a closed organ pipe and that of an open organ pipe are same, what will be the ratio of their lengths? 2