The Times Secondary School
Dillibazar, Kathmandu
First Terminal Examination – 2075

Grade: XII	**Set – A**	Full Marks: 100
Stream: Science		Pass Marks: 40
Subject: C. English		Time : 3 hrs

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

1. Read the following passage and answer the following questions.

[5×3=15]

Today's bride walks down the aisle with her future husband, she has every excuse for being nervous. She is about to exchange vows of lifelong commitment, fidelity and mutual support. Yet all round her, she can see too many people do not and cannot live up to these vows. Her own marriage faces one in three chances of divorce, if present trends continue. Traditional marriage in Britain is currently in turmoil. Not only is the divorce rate rising but the rate at which people marry is falling. Living together is more popular than ever before. The shape of family is now no longer one man, one woman and their children. Instead, there are growing numbers of families which include step-parents, half sisters and brothers, or merely one lone parent coping on her own.

Compared with other countries, Britain is still conservative in its marriage patterns. In America, the divorce rate is even more startling. Two out of five end in divorce. In Sweden, living together is more popular than marriage among couples in their early twenties and a similar pattern seems to be emerging in Denmark.

Although this is happening on a smaller scale in Britain, it has not yet become a marked trend. But if we do follow the American and Scandinavian patterns, the future will see many more couples living together before marriage and even more divorce.

Interestingly, enough, it is women rather than man who get a divorce in the courts. Seven out of ten divorces are granted to the wife divorce, of course, the legal winding up of a marriage which may have effectively broken up long before. The partner who petitions for divorce may not be the partner who broke up the marriage. Women usually have more to gain from the courts in the way of compensation, rights to the home and maintenance. But there is also a fascinating disproportion in one of the grounds that the sexes choose for divorce. The grounds of unreasonable or cruel behaviours are overwhelmingly chosen by ten times more women than men. Does this mean that women will put up with less than they used to?

Questions:
 a) Why does the newlywed bride doubt about the peoples' vows for marriage?
 b) What does the word 'turmoil' indicate in regard to the traditional marriage in Britain?
 c) What do you understand by 'the conservative marriage pattern' in Britain?
 d) How far is the idea of 'living together before marriage' justified against the background of our social norms?
 e) Shorten the passage in to a one third part.

2. Answer any FIVE questions. [5×3=15]
 a) How does an account of the occasion and of the setting in which the narrative occurs affect our understanding of Alyohin ? (*About Love*)
 b) What is the lamentation of the old pensioner? (*The Lamentation of the Old Pensioner*)
 c) What's wrong, in his view, with the treeless Nepal? (*Two Long Term Problems…*)
 d) Stanza four is a break in the narrative. How do you explain its significance in the poem? (*Travelling Through the Dark*)
 e) What salient features of the people of Karnali have the two American geographers depicted in their travelogue? (*Hurried Trip to Avoid Bad Star*)
 f) What does the poet say in the octave first and in the sestet then? (God's Grandeur)

3. Answer any ONE of the following questions. [10]
 a) How do you think an art immortalizes her creator? Submit your supportive arguments in relation to the poem. (*Full Fathom Five Thy Father Lies*)
 b) Discuss the story as tracing the growth of a boy into manhood. (The Last Voyage of the Ghost Ship)

4. Write a question using *"How long"* for each of the situations below and answer it using the words in the brackets. [5]
 a) He read the whole novel. (two weeks)
 b) She did some piano practice. (bed time)

c) She had to baby-sit. (dusk)
d) He reached college. (20 minutes)
e) He drove his sister to Tribhuwan International Airport. (10 am)

5. Explain the following deduction using an if- sentence.   [5]
   Example: They can't be school students- they are not wearing school uniform. If they were school students, they would be wearing uniform.
   a) I'm sure she doesn't like me--she didn't invite me to her birthday party.
   b) I'm sure they are still working—they haven't arrived home yet.
   c) Obviously, Sujan doesn't teach at a college—I've not seen him dealing with college students.
   d) He can't have been painting his house—he hasn't got any stain on his clothes.
   e) She must have visited Hong Kong– she has got many lovely photos of that place.

6. Write definitions for the following people.   [5]
   a) A thick-skinned person
   b) A considerate person
   c) A vain person
   d) A stingy person
   e) A skeptical person

7. Join the following sentences using a non defining relative clause.
                                                              [5]
   a) The old house (the family had lived in it for 300 years) was finally sold.
   b) Mary noticed that he was wearing her ring (she had lost it five years before).
   c) Godfrey (his parents had been in the theatre) decided to become an actor himself.
   d) He became quite fond of Brixton Prison (he had spent so much of his life there).
   e) Nobody liked the eldest son (old Lord Banbury had left all his money to him).

8**. Fill the gaps below with for, in, until or by.   [5]**
   a) They got the lunch ready….11.30.

b) He stayed in bed…..lunchtime.
c) We did all our housework….two hours.
d) We did some piano practice….two hours.
e) We discussed politics….three in the morning.

9. Write advantages and disadvatages to the expressions below as given in the example.   [**5]**
   Example: Package holidays
   Pakage holidays enable people to travel abroad cheaply.
   They discourage people from being adventurous.
   a. Being a movie star.
   b. Living in the country.
   c. Driving a motorbike on highways.
   d. Having a washing machine.
   e. Playing video games

10. Complete these sentences following the example given.   [5]
    Example: I ordered a taxi for ten to eight, but…
    …it didn't come for half an hour.
    ….it was half an hour before it came.
    a) She set us some homework for Monday, but as I was away for the weekened………..(Tuesday)
    b) I practised football honestly, but ………(3 years)
    c) Tournament was supposed to be over, but postponed …..(5 days)
    d) I said he could borrow the record for a few days, but …(two weeks)
    e) His parents expected him to marry young. (48)

11. Write a short description of a person whom the security personnel are searching in connection with a crime in the capital city.   [5]

13. Write a newspaper article about the success story of a Nepali business woman.   [10]

14. Write a letter of application for the post of technical assistant stating your experiences, qualifications and relevant trainings you have.   [10]

The End

The Times Secondary School
Dillibazar, Kathmandu
First Terminal Examination – 2075

Grade: XII   **Set – B**   Full Marks: 100
Stream: Science   Pass Marks: 40
Subject: C. English   Time : 3 hrs

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

1. Read the following passage and answer the following questions.

[5×3=15]

The Patan Appellate Court recently lifted a stay order on the Kathmandu Metropolitan City's plans to provide free parking in selected areas across the city. The very next day, the busy thoroughfares of New Road and Durbarmarg were a haphazard mess of parked vehicles. Flustered owners could be seen trying to extricate their vehicles from among the hodgepodge but to no avail. Previously, private groups would organise the parking, employing a few attendants to manage the vehicles in an orderly fashion, and charge a nominal fee. The upside to this was that owners could always access their vehicles when needed. But the parking areas, all of which were on public land, were being run by syndicates who imposed arbitrary fees and never fully paid their dues to the state. KMC's move, therefore, was an attempt to take back these public spaces and disable these syndicates. While well intentioned, the move fell flat because of KMC's inability to provide attendants and establish a systemic parking practice.

Vehicles parked arbitrarily alongside roads, often blocking lanes and causing traffic jams, were a common sight. It was only after the Metropolitan Traffic Police Department (MTPD) began to crack down on illegal parking that such displays became less frequent. In busy hubs like New Road and Durbar Marg, the private traffic attendants provided some semblance of order. But they too were often capricious and unreliable. If your vehicle was stolen or damaged while parked, there was no one to hold to account. So the KMC's new move, which is part of a larger plan to manage the city's traffic and parking problems, is a welcome step. KMC hopes to institute a "self parking culture" where drivers themselves park their vehicles in designated locations and for strict time limits. Currently, KMC has set a one hour limit for parking in New Road and   two hours in Durbar Marg. Those parking for longer will be fined Rs 1,000.

KMC claims that the current chaos is only temporary and that there will be visible changes within a week. This is good news but it will need to be followed up on. KMC must get its act together and strictly enforce its new parking regimen. Parking spaces must be clearly demarcated so that it is easy to get in and get out. It might be necessary to depute a few attendants to large areas to make sure the parking is organised. Perhaps KMC could also consider charging a nominal fee, as this would help pay for the attendants. Alongside, the MTPD must continue its crackdown on illegal roadside parking so as to keep the roads open and free of unnecessary jams.

Questions.

a) What was the immediate effect of appellate court's decision?
b) What do you think of KMC's intention to implement the new parking regiment?
c) What do you mean by 'self parking culture'?
d) What does the phrase 'good news' refer to in the passage?
e) According to the writer, how can KMC implement the plan effectively?

2. Answer **any five** of the following questions: [5×3=15]
   a) What is the significance of the repetition of words 'now they are going to see who I am.. .'? (The Last Voyage of The Ghost Ship)
   b) How does Alyohin define love? (**About Love**)
   c) What are the reasons to determine the God as powerful? Illustrate. (God's Grandeur)
   d) How are Karnali region and southern Terai interdependent? (**Hurried Trip to Avoid a Bad Star**)
   e) Write examples of onomatopoeia, alliteration, and assonance from the poem. How do they contribute to the meaning of the poem? (**Full Fathom Five Thy Father Lies**)
   f) How do the last two lines complete both types of action? (Travelling through the Dark)

3. Give long answer to **ONE** of the following: [10]
   a) Describe the shifts in subject matter in the three stanzas? What is the effect of these shifts? (The Lamentation of the old Pensioner)
   b) What leads Nissani to the belief that the world is facing an overpopulation crisis? Clarify it with the gist of the essay.

4. Write a question using *"How long"* for each of the situations below and answer it using the words in the brackets.   [5]
   a) He slept. (five hours)
   b) She learnt to play tennis. (four weeks)
   c) She played cards. (dusk)
   d) They talked on Telephone. (20 minutes)
   e) He mowed the lawn. (5 o'clock)

5. Explain the following deduction using an if- sentence. **[5]**

Example: They can't be school students- they are not wearing school uniform.

If they were school students, they would be wearing uniform.

a) I'm sure she likes me-she bought some flower.
b) I'm sure he's still playing – he has not left the game.
c) Rohit can't be a mechanic – we have not seen him dealing with customer.
d) Her parents must have been here recently- the fire is burning is the hearth.
e) She must know English – she was reading Sunday Times.

6. Change the suggestions below using <u>ought to</u>, <u>ought not to</u> , <u>might as well</u> or <u>there's no point</u> whichever is appropriate. **[5]**

a) Don't invite him – he never goes to parties.
b) Lets watch TV- there is nothing else to do?
c) Don't allow your children to see that film – it is full of violence.
d) I suggest that you take a pullover – you've got plenty of room in your case.
e) Don't go swimming – you will make cold worse.

7. Complete these sentences following the example given. [5]

Example: I ordered a taxi for ten to eight, but…

….it didn't come for half an hour.

….it was half an hour before it came.

a) I wrote to my father by e-mail, but …(four weeks)
b) He was invited to dinner, but, typically, …(after 10 o'clock)
c) His parents expected him to marry young, but …(forty-eight)
d) I intended to have an early night, but as it happened ….(midnight)
e) It was supposed to be a short meeting, but ….(three hours)

8. What might Colin say in the given situations? Begin with **'If there is one thing**…' [5]

a) Someone has just spat in the street. Colin is offended.
b) Colin has just seen someone with purple and green hair. He can't stand it.
c) People who smoke in restaurant annoy me.
d) People who are cruel to animals upset me.
e) Robinson came in to borrow some sugar again this morning.

9. **Join the following sentences using a non defining relative clause.** **[5]**

a) Dick was an excellent driver. His forehead was covered in sweat.

b) Alex had closed his eyes. The success of the whole mission depended on him.

c) The truck was gaining on them all the time. A light machine gun was visible from it.

d) Mary was woken by a strange noise. She had been in a deep sleep.

e) The lorry burst into flames. He had bought it second-hand.

10. Write approximately when these people were born, and then decide and write approximately what age they are now. [5]

a) Mike started school in 1998.
b) Albert fought in the Second World War.
c) Christine is not quite old enough to vote yet.
d) Fred will be retiring in a couple of years' time.
e) Brenda has been teaching for 25 years.

11. Write a paragraph about the most impressive person that you have ever met. [5]

12. Write a letter to the editor of The Himayan Times saying about the effects of Global Warming in Nepal. [10]

13. Write an essay on the "Role of Youth for Nation Building". [10]

The End

The Times
INT'L COLLEGE

द टाइम्स माध्यमिक विद्यालय
डिल्लीबजार, काठमाडौं
प्रथम त्रैमासिक परीक्षा: २०७५

कक्षा: १२   समूह क   पूर्णाङ्क : १००
सङ्कायः विज्ञान (दिवा समूह)   उत्तीर्णाङ्क : ४०
विषय : नेपाली   समय : ३ घण्टा

मौलिक र सिर्जनात्मक उत्तरलाई प्राथमिकता दिइने छ ।

क) तल दिइएका वर्णहरूको उच्चारण स्थान र उच्चारण प्रयत्न चिनाउनुहोस् :

घ, प, र, ज, ह

ख) तल दिइएका शब्दको अक्षर संरचना र सङ्ख्या समेत देखाउनुहोस् :

स्याल , भक्ति, अविवाहित, प्रतिनिधित्व, महानगरपालिका

२)   शुद्ध गरी पुनर्लेखन गर्नुहोस् :   (५)

तेस्तै भासाको देषमा लवजको दसा हुन्छ कोही कोही शब्दहरु दूब्ला पातला भयका छन् ।
तिनिहरुको प्राचिन   महत्व उडेको छन्

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

नेपाल प्राकृतिक सम्पदा र सांस्कृतिक वैभवको दृष्टिले धनी देश भए तापनि आधुनिक विकासमा पछाडि परेको छ । नवीन चिन्तन र सङ्गठित प्रयासविना देशविकास सम्भव छैन ।

४)   तलको अनुच्छेदबाट दुई दुई ओटा तत्सम र आगन्तुक शब्द खोजी लेख्नुहोस् :   (२)

विद्याको सर्टिफिकेट कोठाको बाकसमा हुन्छ । भलादमीको प्रमाण पत्र सधैं उसको शरीर उपर विज्ञापन जाहेरी गर्दछ । पोसाक मात्र पहिला पास हो ।

५)   कुनै दुई प्रश्नको उत्तर दिनुहोस् :   (३+३=६)

क) तलको दिइएका उपसर्ग र प्रत्ययद्वारा एक एक शब्द निर्माण गर्नुहोस् :

उपसर्ग : परा, परि, कु

प्रत्यय : इलो, तव्य, अक्कड

ख) तलको अनुच्छेदबाट तिन ओटा समस्त शब्द र तिन ओटा द्वित्व शब्द खोजी समस्त शब्दलाई विग्रह गर्नुहोस् र द्वित्व शब्दमा दोहोरिएको अंश छुट्याउनुहोस् :

चारकोसे झाडीमा लाम्पुच्छे मात्र होइन चौपाया पनि प्रशस्त छन् । हिजोआज हृष्टपुष्ट कामचोर पनि भेटिन्छन् । तसर्थ छिटो छिटो भातसात कपाकप खाएर अरूसँग झैँझगडा नगरी मरमसला बोकेर आफ्नै काममा लाग्नुपर्दछ ।

ग) तलको अनुच्छेदबाट ६ ओटा सन्धियुक्त शब्द पहिचान गरी तिनको सन्धि विच्छेद गर्नुहोस् :

अपाङ्ग व्यक्तिले हिमालय चढेर विद्यालयमा पढेर राम्रा सूक्ति अनुदिन गर्ने छन् । सदैव हामीले मतैक्य भएर ती देवर्षितुल्य प्रत्येक प्रतिभालाई स्वागत गरी परोपकारको पाठ पढाउनुपर्छ ।

प्र.नं.६. कुनै एक प्रश्नको उत्तर दिनुहोस् :   (५)

क) तलको अनुच्छेदमा रहेका बहु वचनलाई एक वचन र एक वचनलाई बहु वचनमा परिवर्तन गर्नुहोस् :

मेरा साथीहरू कलेज पढ्न गए । म चाहिँ गाउँको मायाले यही पढ्न थालेँ । उनीहरू सहरमा धुवाँधुलो खाएर बसेका छन् । म गाउँको स्वच्छ हावापानीमा रमाइ रहेको छु । आखिर पढाइ त उनीहरूको र मेरो एउटै त हो नि ।

ख) तलको अनुच्छेदलाई पुलिङ्ग भए स्त्रीलिङ्ग र स्त्रीलिङ्ग भए पुलिङ्गमा परिवर्तन गरी वाक्य ढाँचा मिलाई पुनर्लेखन गर्नुहोस् :

ऊ पोखरामा बस्छ । ऊ विद्यालयमा पढाउँछ । उसकी एउटी महिला साथी छे । ऊ संस्थानमा काम गर्छे । ऊ आफ्नी महिला साथीलाई पार्कमा घुम्न जाने प्रस्ताव गर्छ ।

प्र.नं.७. तलको अनुच्छेदका वाक्यलाई सङ्गति मिलाई पुनर्लेखन गर्नुहोस् :   (६)

यसपालि तिजमा मेरो बहिनी सहरबाट गाउँ आयो । मैले उसलाई भेट्नु पायो । ऊ धेरै खुसी भयो । म पनि खुसी भई । मैले उहाँलाई बजार घुमायो । ऊ फेरि सहर फर्किनभयो ।

अथवा

ले, लाई, बाट, द्वारा, मा र लागि विभक्ति लागेका भिन्न भिन्न कारकको प्रयोग भएका ६ ओटा वाक्यको अनुच्छेदमा आफ्नो मन पर्ने साथीको वर्णन गर्नुहोस् ।

प्र.नं.८. कुनै दुई प्रश्नको उत्तर दिनुहोस् :   (२ ×४= ८)

क) तलका वाक्यहरूलाई एकै वाक्यमा संश्लेषण गर्नुहोस् :

हर्षनारान खुसी हुँदै भरेङ उक्लिदै थिए । हर्षनारान बुइंगलमा आइपुगे । हर्षनारान बेसरी हाँसे । लतमाया छक्क परिन् ।

ख) तलका वाक्यलाई करण भए अकरण र अकरण भए करणमा परिवर्तन गर्नुहोस् :

धनजितेको परिवार बिरामी भएन । ऊ गुमानेसँग बोल्यो । धनजिते उठन सक्यो । गुमानेलाई उसप्रति दयामाया जागेन । उसले गाईवस्तुको हेरचाह गरिदिएन । उसले धनजितेको स्याहार गरेन । गुमानेले आशामरू साहले भनेको कुरा मान्यो । धनजिते र उसको परिवारलाई निको भएन ।

ग) आवश्यक थपघट गरी वाच्य परिवर्तन गर्नुहोस् :

यस वर्ष छुट्टीमा घुम्न गइन्छ । नयाँ नयाँ ठाउँ हेरिन्छन् । आवश्यकतानुसार सामानहरू किनिन्छन् । त्यहीँ बसेर रमाइलो पनि गरिन्छ । दुई हप्तापछि घर फिरिन्छ । देखिएको कुरा सबैलाई सुनाइन्छ । यात्रा संस्मरण लेखिन्छ । मौका परे पत्रिकामा पनि छपाइन्छ ।

(९) तलको अनुच्छेद पढी सोधिएका प्रश्नको उत्तर दिनुहोस्:   (१०)

लोकतन्त्रमा सूचनका माध्यमको व्यवस्थापन कसले र कसरी गर्ने भन्ने विषयमा खास सैद्धान्तिक विवाद छैन तर व्यावहारिक प्रयोगमा भने विभिन्नता पाइएका छन् । लोकतान्त्रिक देशहरूको समेत प्रसारण माध्यमहरूको व्यवस्थापन सरकारको तर्फबाट हुने परिपाटी अझै पनि नभएका होइन तर छापा माध्यम भने प्राय : सरकारद्वारा सञ्चालित हुने गर्दैनन् । नेपालमा भने अहिले छापा माध्यम सरकारले चलाइरहेको छ । लोकतन्त्रको पुनर्स्थापना हुनुभन्दा पहिले सूचना प्रवाहको परिपाटी नियन्त्रणात्मक र निर्देशनमुखी थियो । अपेक्षाकृत स्वतन्त्र रूपमा सूचना दिन खोज्ने निजी क्षेत्रका माध्यमहरू समेत सरकारका तर्फबाट बारम्बार प्रताडित र प्रतिबन्धित हुने अवस्था थियो । लोकतन्त्रको स्थापनाले यस परिपाटीमा व्यापक र आधारभूत परिवर्तन ल्यायो । परिणाम स्वरूप निजी क्षेत्रका सञ्चार माध्यमहरूमाथिको नियन्त्रित परिपाटी समाप्त गरे पनि सरकारी संस्थाहरूबाट सूचनाको प्रवाह गर्ने परिपाटीमा अपेक्षा गरे अनुसारको गुणात्मक परिवर्तन भने आउन सकेको देखिँदैन । जे जति परिवर्तन देखिन्छ त्यो व्यवस्थित र वैज्ञानिक सुधारका कारण नभएर व्यापक राजनीतिक परिवर्तनको कारण हुन पुगेको स्वाभाविक परिणाम मात्र अनुभव हुन्छ ।

प्रश्नहरू

(अ) लोकतन्त्रमा सञ्चार माध्यमको व्यवस्थापन कसरी गर्नु उचित हुन्छ ?

(आ) लोकतन्त्रको पुनर्स्थापना हुनुभन्दा पहिले सूचना प्रवाहको परिपाटी कस्तो थियो ?

(इ) लोकतन्त्रले सञ्चार क्षेत्रमा कस्तो परिवर्तन ल्यायो ?

(ई) नेपालमा सरकारी स्तरबाट के कस्ता सञ्चार माध्यमहरू सञ्चालित छन् ?

(उ) 'प्रसारण माध्यम' र 'अपेक्षाकृत' शब्दको अर्थ लेख्नुहोस् ।

प्र.नं.१०. प्र.नं. ९ मा दिइएको गद्यांश पढी मुख्य मुख्य पाँच ओटा बुँदा टिपोट गर्नुहोस् ।   (५)

प्र.नं.११. आफ्नो घरमा एउटा टेलिफोन लाइन जडान गरिदिन अनुरोध गर्दै स्थानीय दूर सञ्चार कार्यालयका प्रमुखलाई सम्बोधन गरी एउटा निवेदन लेख्नुहोस् ।   (५)

प्र.नं.१२. 'बढ्दो वातावरण प्रदूषण र यसको असर' शीर्षकमा १५० शब्दसम्मको अनुच्छेद लेख्नुहोस् ।   (५)

(१३) तल दिइएका मध्ये कुनै एक शीर्षकमा निबन्ध लेख्नुहोस् :   (१०)

(क) मेरो सपनाको नेपाल   (ख) विज्ञानको चमत्कार

(ग) लोकतन्त्र र अनुशासन

(१४) एक चिहान उपन्यासको तल दिइएको अंश पढी सोधिएका प्रश्नको उत्तर दिनुहोस् ।   (१०)

मलाई पनि थाहा छ युगको गति,स्वतन्त्रताको महत्त्व र मानव इच्छाको कुरा तर म स्वतन्त्रताका नाउँमा जसले जोसँग जस्तो पनि प्रेम गरेर हिँडेको हेर्न चाहन्नँ । प्रेमको पनि महत्त्व हुन्छ,उसका निम्ति पनि फुक्का र बन्धनको लेखाजोखा, मापदण्ड हुन्छ, सीमारेखा हुन्छ, विधान हुन्छ सुपात्र र कुपात्र हुन्छ । यी सब कुरालाई, बाटोलाई, तबरलाई नाघेर मानिस हिँड्न सक्दैन, पाउँदैन । त्यसैले जीवनमा अभिभावकहरू हुनु बेसै छ । यो सौभाग्यको कुरा हो र अभिभावकहरूले यस कुराको ख्याल विचार राम्ररी पुर्‍याउनु पर्छ ।

प्रश्नहरू

(क) माथिको गद्यांशमा प्रेमका विषयमा कस्तो विचार व्यक्त गरिएको छ ? उपन्यासका आधारमा स्पष्ट गर्नुहोस् ।

(ख) अभिभावकहरूले के कुराको ख्याल गर्नुपर्दछ ? के शिवनारानले सही अभिभावकको भूमिका निर्वाह गरे ? उपन्यासका आधारमा स्पष्ट गर्नुहोस् ।

(१५) कुनै दुई प्रश्नको उत्तर दिनुहोस् :   (१०)

(क) तलका गीति अंश पढी सोधिएका प्रश्नको उत्तर दिनुहोस् :

तराई हाम्रो सुनको टुक्रा हिमाल हिराको
माटो र पानी पहिलो धन धर्तीका छोराको
ए कहाँबाट हेरौंला संसार सन्भ्यालै नरहे
नेपाली हामी रहौंला कहाँ नेपालै नरहे ।

प्रश्नहरू

(अ) तराई सुनको टुक्रा भन्नुको तात्पर्य के हो ?क
(आ) धर्तीका छोरा भनेर कसलाई भनिएको हो ?
(इ) माटो र पानी पहिलो धन कसरी हुन सक्छ ?
(ई) ए कहाँबाट हेरौंला संसार सन्भ्यालै नरहे भन्नुको आशय के हो ?
(उ) नेपाल नरहे हामी नेपाली किन रहँदैनौं ?

(ख) तलको कथांश पढी सोधिएका प्रश्नको एक दुई वाक्यमा उत्तर दिनुहोस् :

किसानहरू सबै कुरा सहन सक्छन् परन्तु वस्तुलाई अर्कोले दया छाडेर कुटेको हेर्न सक्दैनन् । बिउबाट धपाइन्जेल त गुमाने केही बोलेको थिएन, परन्तु जब कुट्न लाग्यो अनि गुमानेको रिसको सीमा रहेन । असार महिनाभरि दिनभर जोत्नुपर्ने गोरु,उसमाथि पसेका मात्र थिए, उति नोक्सान गरेका थिएनन् । जुरुक्क उठेर भन्यो, बिउ नोक्सानी गरेको छ भने अर्मल ले, असारका गोरु किन कुट्छस् ए धनजिते ।

प्रश्नहरू

(अ) किसानहरू किन आफ्ना वस्तुलाई अर्कोले कुटेको हेर्न सक्दैनन् ?
(आ) गुमानेको रिसको सीमा किन रहेन ?
(इ) गुमाने र धनजितेको बिच झगडा हुनको कारण के हो ?
(ई) असारका गोरु किन कुट्नु हुँदैन ?
(उ) सीमा र अर्मल शब्दको अर्थ लेख्नुहोस् ।

(ग) तलको निबन्धांश पढी सोधिएका प्रश्नको एक दुई वाक्यमा उत्तर दिनुहोस् :

समुन्द्रपारिका नारीहरूलाई बरू साथी बनाउन सजिलो होला तर आफ्नो देश, आफ्नो सहर र गाउँका, आफ्नो टोल र छिमेकका आइमाईलाई साथी बनाउन हामीलाई गारो पर्छ तर गारो भन्दैमा राम्रो कामबाट पन्छिनु उचित कुरा होइन । त्यसैले आइमाई साथी बनाउन सकिने किसिमको अवसर पर्दा म प्राय: पछि सर्ने गर्दिनँ ।

प्रश्नहरू

(अ) समुन्द्रपारिका नारीहरूलाई साथी बनाउन किन सजिलो होला ?

(आ) आफ्नै देशका नारीहरूलाई साथी बनाउन किन नसकिएको हो ?
(इ) गारो भन्दैमा राम्रो कामबाट पन्छिनु उचित कुरा होइन भन्नुको तात्पर्य के हो ?
(ई) निबन्धकारलाई किन आइमाई साथी बनाउन मन लागेको हो ?
(उ) यस निबन्धको मूल आशय के हो ?

प्र.नं.१६. 'हर्क बहादुर' कवितामा व्यक्त भएको भावप्रति आफ्नो प्रतिक्रिया लेख्नुहोस् ।   (५)

शुभ-लाभ

द टाइम्स माध्यमिक विद्यालय
डिल्लीबजार, काठमाडौँ
प्रथम त्रैमासिक परीक्षा: २०७५

कक्षा: १२	समूह ख	पूर्णाङ्क : १००
सङ्कायः विज्ञान (दिवा समूह)		उत्तीर्णाङ्क : ४०
विषय : नेपाली		समय : ३ घण्टा

मौलिक र सिर्जनात्मक उत्तरलाई प्राथमिकता दिइने छ ।

प्र.नं.१. कुनै एक प्रश्नको उत्तर दिनुहोस् : (५)

क) तल दिइएका वर्णहरूलाई उच्चारण स्थान र प्रयत्नका आधारमा चिनाउनुहोस् :

खः, च, द, म, ह

ख) तल दिइएका शब्दहरूको अक्षर संरचना र सङ्ख्या देखाउनुहोस् :

घर, विशेषण, गुमाने, सँवैधानिक, उल्लासमय

प्र.नं.२. शुद्ध गरी पुनर्लेखन गर्नुहोस् : (५)

अषारको महिना थियो । दिउँसोको तन्तलापुर घाममा किसान हरु मेलो छोडेर चउतारामा संगीत सुन्दइ बसिरहेका थिए ? गूमाने र धनजिते भगडा गर्न लागे ।

प्र.नं.३. रेखाङ्कित शब्दको पदवर्ग पहिचान गरी लेख्नुहोस् : (३)

गाउँमा एक जना बुढा रहेछन् । एक दिन उनलाई भेट्न अर्का बुढा मान्छे आएछन् तर भेट हुन सकेनछ । गाउँलेहरूले कठैँ ! बिचराले दुख मात्र पाए भनेछन् ।

प्र.नं.४. तलको अनुच्छेदबाट दुई दुई ओटा तत्सम र अगन्तुक शब्द खोजी लेख्नुहोस् : (२)

यो सहरको स्पर्शले यस शरीरलाई कुरूप बनाए पनि मन भने तिमीले जस्तो बनाइ दिएकी छौ त्यस्तै छ । सहरमा पाइने मोटरको सुविधा, डाक्टरको औषधी र खर्पनको हरियो तरकारीले पनि मेरो शरीरलाई सुन्दर बनाउन सकेको छैन ।

प्र.नं.५. कुनै दुई प्रश्नको उत्तर दिनुहोस् : (२ ×३= ६)

क) तल दिइएका उपसर्ग र प्रत्यय लगाई एक एक शब्द बनाउनुहोस् :

उपसर्ग : प्र, अनु, सु

प्रत्यय : ता, तव्य, ईन

ख) तलको अनुच्छेदबाट तिन ओटा समस्त शब्द र तिन ओटा द्वित्व शब्द खोजी समस्त शब्दलाई विग्रह गर्नुहोस् र द्वित्व शब्दमा दोहोरिएको अंश छुट्याउनुहोस् :

भाइमाराहरू आआफ्नो सुखप्राप्तिका लागि बसीबसी देशहितका कुरा गर्न पछि पर्दैनन् । घरघरमा रहेका बुद्धि सुद्धि नभएका मानिसलाई समाज बहिष्कृत गर्न नसक्दा नेपाली जनताको घरजम उजाडियो । यो चाला गाईजात्रा साइजात्रा जस्तै हो भने कर्तव्यनिष्ठ मानिसका अभावमा मानिसको चरित्रनिर्माणमा कठिनाइ उत्पन्न भएको छ । देशभक्त नेपाली दाजुभाइले समाजका निर्लज्ज र दुईजिब्रे चरित्रका मानिसहरूलाई कानुन बमोजिम नङ्ग्याएर चौबाटोमा उभ्याउन सक्ने हो भने छिमेकी मित्र भनाउँदाहरूले पनि अघोषित रूपमा नाकाबन्दी साकाबन्दी लगाउन सक्दैनथे ।

ग) तलको अनुच्छेदबाट छ ओटा सन्धियुक्त शब्द पहिचान गरी तिनको सन्धि विच्छेद गर्नुहोस् :

नेपाल घुम्न आएका पर्यटकहरू नेपालीहरूको स्वागत, सत्कार र आतिथ्यलाई पाएर अत्यन्त प्रशन्न हुँदै हाँसिलो अनुहार लगाई आफ्नो मुलुक फर्कन्छन् भनेर मैले उल्लाई भनेँ ।

६) कुनै एक प्रश्नको उत्तर दिनुहोस् : (५)

क) तलका वाक्यहरूलाई सामान्य आदरार्थीमा परिवर्तन गर्नुहोस् :

तँ गाउँले केटो होस् । तँ त्यहीँको हावापानीमा हुर्केको बढेको होस् । अहिले कामको खोजीमा सहर आएको छस् । तैले गाउँ बिर्सेको छैनस् । काम नपाए तँ गाउँकै सेवामा फर्कन्छस् । तैले गाउँकै सेवा गर्छस् ।

ख) वाक्य ढाँचा सहित एक वचनलाई बहु वचनमा परिवर्तन गर्नुहोस् :

म कक्षा १२ मा पढ्ने विद्यार्थी हुँ । कलेजमा मेरो एक जना मन मिल्दो साथी छ । साथी मलाई माया मात्र होइन सहयोग पनि गर्छ । म दिनहुँ बाटामा उसलाई भेट्छु । ऊ पनि सधैँ मलाई भेट्ने प्रयास गर्छ ।

७) कुनै एक प्रश्नको उत्तर दिनुहोस् : (६)

क) तलको वाक्यलाई सङ्गति मिलाई पुनर्लेखन गर्नुहोस् :

मेरो बहिनी पोखराको मणिपाल कलेजमा डाक्टरी पढ्छ । मेरी भाइ चाहिँ सात कक्षामा पढ्छे । तपाईँ पोखरा जान्छस् ? जाने भए हिँड । म पनि बहिनी भेट्न पोखरा जाँदै छ । हामी दुबै सँगै जालास् ।

ख) तलको अनुच्छेदका रेखाङ्कित शब्दहरू कुन कुन कारकका हुन् ? छुट्याउनुहोस् ।

वीरगन्जबाट बसद्वारा आएका हाम्रा काकालाई काठमाडौँमा जाडोले खुब सतायो । विद्यार्थीलाई पढाएर आउँदै आउँदै बाटामा काकाले मलाई इसाराले बोलाउनु भयो । म दौडँदै गएँ । हामी सँगै घर पुगेपछि आमाले कसौँडीबाट डाडुले खिर झिकी कचौरामा हालेर दुबैलाई दिनुभयो ।

८) कुनै दुई प्रश्नको उत्तर दिनुहोस् : (२×४=८)

क) आवश्यक कुरा थपघट गरेर तलका वाक्यहरूलाई वाच्य परिवर्तन गरी पुनर्लेखन गर्नुहोस् :

यस बर्षको जाडो विदामा नगरकोट गइएको थियो । बिहान १० बजे त्यहाँ पुगियो । एक छिन पछि खाजा खाइयो । नगरकोटको 'भ्यु टावर' बाट सहरको सुन्दर दृश्य हेरियो । त्यहाँबाट सहर साँच्चै रमाइलो देखिएको थियो । केहीबेर जङ्गल परिभ्रमण पनि गरियो । त्यस दिन खुब रमाइलो गरियो । करिब ५ बजे घर आइ पुगिएको थियो ।

ख) तलका जटिल वाक्यहरूलाई आठ ओटा सरल वाक्यमा छुट्याउनु होस् :

पाथिभरा हिमाल ताप्लेजुङ जिल्लामा पर्छ भने त्यसको थाप्लामा महाकाली मन्दिर छ । जाडो मौसममा त्यहाँ ६-७ महिना हिउँ जमेको हुन्छ त्यसैले त्यहाँ प्रायः बैशाखदेखि आश्विनसम्म पर्यटकको घुँचो लाग्छ । त्यहाँ भक्तजनहरूको भीड हुन्छ किनकि त्यहाँ देशका विभिन्न ठाउँबाट तीर्थालुहरू आउँछन् । जहिले त्यहाँ ठुलो मेला लाग्छ तहिले विदेशबाट तीर्थालु पनि आउँछन् ।

ग) एउटै वाक्यमा संश्लेषण गर्नुहोस् :

सम्झना मेरी मनपर्ने साथी हुन् । उनलाई मैले धेरै समय पहिलेदेखि चिनेको हुँ । उनी मिलनसार र कुशल गृहिणी हुन् । उनको सबैले प्रशंसा गर्छन् ।

९) तलको अनुच्छेद पढी सोधिएका प्रश्नहरूको उत्तर दिनुहोस् : (१०)

हाम्रो वरिपरि रहेका सबै थरीका बोट विरुवा,रुख,लहरा घाँसपात आदिलाई बुझाउने साझा नाउ वनस्पति हो । संसारमा फुल्ने र नफुल्ने गरी दुई प्रकारका वनस्पतिहरू छन् । नेपालमा पनि यी दुबै प्रकारका वनस्पति पाइन्छन् । नेपाल भौगोलिक विविधता भएको देश हुनाले यहाँ फरक फरक किसिमको हावापानी छ र सोही अनुसार यहाँ विभिन्न किसिमका वनस्पति पाइन्छन् । नेपालका तराई, भावर दुन र चुरे क्षेत्रमा उपोष्ण प्रदेशीय सदावाहार जङ्गल छ । समुन्द्री सतहदेखि एक हजार दुई सय मिटरसम्मको उचाइमा रहेको जङ्गल नै उपोष्ण प्रदेशीय सदावाहार जङ्गल हो । यो जङ्गल ज्यादै धना हुन्छ । एक हजार दुई सय मिटरभन्दा माथि करिब दुई हजार एक सय मिटरसम्मको उचाइमा उम्रने रुखबाट बनेको जङ्गललाई समशीतोष्ण पतझर जङ्गल भनिन्छ । यो पहाडी जङ्गल हो र यो त्यति धना वा बाक्लो हुँदैन । समुन्द्री सतहबाट तिन हजारदेखि चार हजार मिटर उच्च भूभागमा पाइने वनस्पतिलाई लेकाली वनस्पति भनिन्छ । हिमालको तल्लो भूभाग तथा केही होचो धरातलमा यस्ता वनस्पति रहन्छन् । समुन्द्री सतहबाट चार हजार मिटरभन्दा उच्च भूभागमा पाइने वनस्पतिलाई हिमाली वनस्पति वा टुन्ड्रा भनिन्छ । यस्ता वनस्पति रहने ठाउँको तापक्रम वर्षभर ० डिग्री भन्दा पनि न्यून रहन्छ । नेपालका उच्च पहाडी, लेकाली र हिमाली वन प्रदेशमा यार्सागुम्बा, पाँचऔँले, जटामासी जस्ता औषधीय गुणका वनस्पति पाइन्छन् । यी थरी थरीका वनस्पति पाइने नेपालको वन प्रदेश अत्यन्त महत्त्वपूर्ण प्राकृतिक सम्पदा हो ।

प्रश्नहरू:

क) नेपालमा कस्ता कस्ता वनस्पतिहरू भेटिन्छन् ?

ख) उपोष्ण प्रदेशीय सदावाहार जङ्गलका चिनारी के के हुन् ?

ग) समशीतोष्ण पतझर जङ्गलका चिह्न के के हुन् ?

घ) लेकाली वनस्पति र हिमाली वनस्पतिमा के फरक छ ?

ङ) 'विविधता' र 'सदावाहार' शब्दले के के अर्थ बुझाउँछन् ?

१०) प्रश्न नं. ९ मा दिइएको गद्यांश पढी मुख्य मुख्य पाँच ओटा बुँदा टिपोट गर्नुहोस् । (५)

११) आफ्नो घरमा बिजुली बत्तीको उचित प्रबन्ध मिलाइदिन अनुरोध गरी विद्युत प्राधिकरण कार्यालयका प्रमुखलाई एउटा निवेदन लेख्नुहोस् । (५)

१२) 'बढ्दो सहरीकरण र शुद्ध खानेपानीको समस्या' शीर्षकमा १५० शब्दसम्मको अनुच्छेद लेख्नुहोस् । (५)

१३) तल दिइएका मध्ये कुनै एक शीर्षकमा निबन्ध लेख्नुहोस् : (१०)

क) कम्प्युटर र इन्टरनेट   ख) समयको महत्त्व   ग) मेरो जन्मभूमि

१४) 'एक चिहान' उपन्यासको तल दिइएको अंश पढी सोधिएका प्रश्नको उत्तर दिनुहोस् । (५ + ५=१०)

नानी थकुँ ! नारी भएर तिमीले नारीको मूल्य पहिचान्न सक, नारीको महत्त्व बढाउन कोसिस गर । समाजको मर्यादा र गौरव नारीको मूल्यमा निर्भर छ । भौतिक उन्नति र सुविधाले मानिसलाई बाहिरी सुखमात्र प्राप्त हुन सक्तछ , तर नारीको चरित्र पाउनाले मानिसको जीवनमा अलौकिक आनन्द आउँछ । त्यसैले सभ्यताको मापदण्ड,भौतिक उन्नति र विज्ञानमा मात्र हुँदैन, चरित्रको उन्नति नै उसको चरम सीमा हो । नारीको चरित्र हाँस्न पाएको ठाउँमा पुरुषको आत्माले नाच्न पाउँछ ,त्यस्ता ठाउँमा नै हौसला फुल्न आइ रहन्छ,फुर्ती मुस्कुराई रहन्छ र अभिमान बाँचि रहन्छ ।

प्रश्नहरू:

क) माथिको अनुच्छेदमा रञ्जना देवीले नानी थकुँको कुन पक्ष सुधार्न खोजेको देखिन्छ ? उपन्यासका आधारमा स्पष्ट पार्नुहोस् ।

ख) रञ्जना देवीको माथिको अभिव्यक्तिबाट नानी थकुँको जीवनमा कस्तो परिवर्तन देखा पर्छ वा पर्दैन ? विस्तार गर्नुहोस् ।

१५. कुनै दुई प्रश्नको उत्तर दिनुहोस् : (२×५=१०)

क) तलको कवितांश पढी सोधिएका प्रश्नको उत्तर दिनुहोस् :

दसैँ र तिहार रमाइला हाम्रा चुड्का र ख्यालीले
हिर्दय हाम्रो जुर्मुराउँछ जितको भ्र्यालीले
बैंसको तालमा नाचौँला कहाँ मादलै नरहे
नेपाली हामी रहौँला कहाँ नेपाल नरहे

प्रश्नहरू :

अ) माथिको कवितांशमा के कुराले हाम्रो संस्कृति झल्काएका छन् ?

आ) यस कवितांशका लेखक को हुन् र शीर्षक के हो ?

इ) के कारणले हाम्रो हृदय जुर्मुराउँछ ?

ई) 'बैंस' र 'ताल' शब्दका अर्थ लेख्नुहोस् ।

उ) नेपाल नरहे हामी नेपाली किन रहन सक्दैनौँ ?

ख) तलको कथांश पढी सोधिएका प्रश्नहरूको उत्तर दिनुहोस् :

"यस्तै हो, मैले पनि सहर बसिदिएको भए किन झगडा हुन्थ्यो ? एउटै सिरान गरेर सुतेपछि कहिलेकाहीँ गोडा लाग्छ नाइ, झगडा भयो भन्दैमा धर्म छोड्नु हुन्छ ? आफूले साँचो मनले उपकार गरेपछि उसको आत्माले पनि गर्न कर लाग्छ । अमृत रोपेको ठाउँमा विष फलेको सुनेका छौँ ? माटोको भर ढुङ्गाका भर माटो, संसार भरैभरमा अडेको छ ।"

प्रश्नहरू:

अ) यो भनाइ कसको हो ?

आ) यो अनुच्छेदको मूलभाव के हो ?

इ) झगडाको कारण के देखिन्छ ?

ई) अमृत रोपेको ठाउँमा विष किन फल्दैन ?

उ) 'संसार भरैभरमा अडेको छ' भन्नुको तात्पर्य के हो ?

ग) तलको निबन्धांश पढी सोधिएका प्रश्नहरूको उत्तर दिनुहोस् :

नारीलाई नरकको मूल ढोका नठान्ने र जीवनको सबै जसो क्षेत्रमा स्त्री पुरुषको बराबरी हक हुनुपर्छ भन्ने एवम् पछौटे देशका आइमाईलाई घर नाउँको भ्रयालखानाभित्र थुनिरहन नदिई सामाजिक क्षेत्रमा समेत लम्कन हौसाउनेहरू साहित्य तथा राजनीति आदि तर्फ लागेका युवकहरू नै हुन् । यस किसिमको कामको

निम्ति महिलाहरूको सम्पर्कमा रहने गर्नु र उनीहरू मध्ये बढी जनालाई आफ्नो मित्र बनाउनु जरुरी समेत छ ।

प्रश्नहरू:

अ) माथिको अंश कुन पाठबाट निकालिएको हो र यसका रचयिता को हुन् ?

आ) 'नारीलाई नरकको मूल ढोका नठान्ने' भन्नुको तात्पर्य के हो ?

इ) आधुनिक युवाहरूमा स्त्री पुरुषका विषयमा कस्तो दृष्टिकोण रहेको छ ?

ई) लेखकको नारी सम्बन्धी मान्यता कस्तो रहेको छ ?

ए) आइमाई साथी बनाउन के गर्न जरुरी छ ?

१६) लोककथामा मधुकर र मालतीको त मिलन भयो तर 'मधुमालतीको कथा' मा शङ्कर र गौरीको चाहिँ किन विच्छेद भएको होला ? प्रतिक्रिया लेख्नुहोस् । (५)

शुभ - लाभ

The Times Secondary School
Dillibazar, Kathmandu
First Terminal Examination – 2075

Grade: XII	**Set A**	**Full Marks: 75**
Stream: Science		**Pass Marks: 30**
Subject: Physics		**Time: 3hrs.**

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

GROUP-A

1. Answer in brief, <u>any Four</u> questions: **(4×2=8)**
   a. If a copper wire is stretched to make it 0.1% longer, what is the percentage change in its resistance?
   b. Why the transformer is used for the long distance transmission? Explain.
   c. A copper and constantan, which would you prefer to make a heating element? Explain.
   d. What is maximum power transfer theorem in electricity?
   e. What is eddy current? What are its uses?
   f. What are the factors on which the mutual inductance of two coils depend?

2.Answer in brief, <u>any four</u> questions: **(4×2=8)**
   a. If the intensity of light is doubled, what will be the change in cut off potential?
   b. N – type semi conductor is electrically neutral why ?
   c. If the energy of hydrogen atom in ground state is -13.6eV, what will be energy in the same state in He$^+$ ion.
   d. A hydrogen atom has only one electron but different possible wavelengths are obtained, why?
   e. Why photoelectric effect can't be observed with all types of wavelength? Explain.
   f. We have valence electrons and conduction electrons in a semiconductor. Do we also have valence holes and conduction holes?

3.Answer in brief, <u>any one</u> question: **(1×2=2)**
   a. What is the effect of wind in a velocity of sound? Explain.
   b. An empty vessel sounds much more than the filled one, why?

4.Answer in brief,<u>any one</u> question: **(1×2=2)**
   a. If Young's apparatus is immersed in water, what will be the effect in fringe width?
   b. Does the interference of light waves obey the law of conservation energy? Explain.

GROUP B

5.Attempt <u>any three</u> questions: **(3×4=12)**
   a. What is internal resistance of a cell and describe the factors which affect it. Derive an expression for the internal resistance of a cell.
   b. What are Kirchhoff's laws? Derive an expression for the balanced condition of Wheatstone   bridge.
   c. What is Ampere's circuital law? Derive an expression for the force between two like current carrying conductor. Also define one ampere current in terms of force?
   d. What is electromagnetic induction? Derive an expression for the induced emf in a coil rotating in a magnetic field..

6. Attempt <u>any three</u> questions: **(3×4=12)**
   a. What is p-n junction diode? How does it work as full wave rectifier?
   b. Describe an experiment to verify the Einstein's photoelectric effect.
   c. What is specific charge of an electron. Describe an experiment to find the charge of an electron if the electric field is so adjusted that the oil drop continues to move downward.
   d. What are Bohr's postulates? Derive expression for the total energy of electron in second orbit of hydrogen atom.

7. Attempt <u>any one</u> questions: **(1×4=4)**
   a. What are progressive and stationary waves? Derive the equation of progressive wave equation and find the particle's acceleration.
   b. Discuss the effect of pressure, temperature and density of elastic medium on the velocity of sound.

8.Attempt <u>any One</u> questions: **(1×4=4)**
   a. Describe the Focault's method for the determination of speed of light.
   b. What is Huygen's principle? Use this principle to verify the law of reflection of light.

GROUP C

9.Attempt <u>any two</u> questions: **(2×4=8)**
   a. A uniform magnetic field exists in a direction perpendicular to the plane of a square frame made of copper wire. The wire has a

diameter of 2mm and a total length of 40cm.the magnetic field changes with a time at a steady rate of 0.02T/s. Find the current induced in the frame. Resistivity of copper= $1.7\times10^{-8}\Omega$-m.

b. A battery of emf 2 volts and internal resistance 0.10Ω is being charged with a current of 5A.What is the potential difference between the terminals of a battery.

c. A battery of 6V and internal resistance 0.5Ω is joined in parallel with another battery of 10V and internal resistance 1Ω.The combination sends a current through an external resistance of 12Ω.Find the current through each resistance.

10.Attempt <u>any two</u> questions: **(2×4=8)**

   a. In a photoelectric experiment, it was found that the stopping potential decreases from 1.85V to 0.82V as the wavelength of the incident light is varied from 300nm to 400nm. Calculate the value of the

   b. A monochromatic light of wavelength λ is incident on an isolated sphere of radius 'a'. The threshold wavelength is λ_o which is larger than λ. Find the no. of photoelectrons emitted before the emission of photoelectrons will stop.

   c. Electrons with kinetic energy of 500eV are projected between two parallel charged metal plates in a direction parallel to the surface. The plates are at a potential difference of 5V and 5mm apart and 4cm long. What is the angle the emergent beam makes with the original direction.

11.   **A man standing at one end of a closed corridor 57m long blow a short blast of a whistle. He found that the time from the blast to the sixth echo was 2 seconds. If the temperature was 17⁰C.What was the velocity of sound at 0⁰C.**

                                           (4)

12.   **Two straight and narrow slits 0.3mm apart are illuminated by a monochromatic source of a wavelength 590nm.Fringes are obtained at a distance of 30cm from the source. Find the width of the fringes .Also calculate the change in fringe width, when apparatus is immersed in a liquid of refractive index 1.475.**   **(3)**

The End

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

GROUP A

1. Answer in brief, <u>any FOUR</u> questions: (2×4=8)
   a. If the diameter of a wire is decreased by 0.2%, what is the percentage change in its resistance?
   b. What is the significance of Hall effect? Explain.
   c. Explain the brightness of a bulb in electricity.
   d. Why the voltmeter is always connected in parallel with a load resistance? Explain.
   e. What advantage is over there to measure the resistance by Wheatstone bridge?
   f. Why induction brakes are kept in an electric train. Discuss.

2. Answer in brief, <u>any FOUR</u> questions: (2×4=8)
   a. Can the photon be at rest? Explain.
   b. What is the ratio of specific charge of proton to the alpha particle?
   c. The conduction band of a solid is partially filled at 0 K. Will it be a conductor, a semiconductor or an insulator?
   d. If the radius of first orbit of hydrogen atom is $0.53A^0$, what is the radius of Li^{++} in the same orbit.
   e. The threshold frequency of the plate is f_0 and the incident frequency is f, what will happen to the maximum kinetic energy of the photoelectrons if the frequency is doubled?
   f. Show that the velocity of electron in Bohr's first orbit is equal to $c/137$.

3. Answer in brief <u>any ONE</u> question: (1×2=2)
   a. Sometimes the windows of glass of houses are cracked when bomb explodes at a distance of miles. Why?
   b. Does the sound wave show the reflection and refraction phenomena? Explain.

4. Answer in brief <u>any ONE</u> question: (1×2=2)
   a. Two waves are represented in usual notation as $y_1=A_1 sinwt$ and $y_2=A_2 coswt$. Ther intensity is I_1 and I_2, what will be the ratio of their amplitude when $I_1=2I_2$.
   b. What are the assumption on which Huygen's principle is based?

GROUP B

5. Attempt <u>any three</u> questions: (4×3=12)
   a. What is Biot-Savart law? Derive an expression for the magnetic field due to a circular coil at an axial point.
   b. State and explain Lenz's law. Derive an expression for the emf induced in the conductor moving in a magnetic field.
   c. What is mechanism of metallic conduction? Derive the relation between current density and drift velocity.
   d. What is the principle of potentiometer? How do you find the internal resistance of a cell?

6. Attempt <u>any three</u> questions: (4×3=12)
   a. What are the Bohr's postulates? Find the radius of second orbit in a hydrogen atom.
   b. What is rectifier? Describe the working of a p-n junction diode as a half wave rectifier.
   c. Describe an experiment to find the charge of electron if the electric field is so adjusted that the oil drop remains stationary.
   d. Explain the Einstein's photoelectric effect? Also explain the various terms involved in it.

7. Attempt <u>any ONE</u> questions: (1×4=4)
   a. Write the formula for the velocity of the sound in air due to the isothermal and adiabatic expansion.
   b. Find the position of node and antinode in a standing wave?

8. Attempt <u>any one</u> questions: (1×4=4)
   a. Describe Michelson's method for the determination of speed of light.
   b. Differentiate between wave front and wavelets .Prove the laws of refraction of light on the basis of Huygens's principle.

GROUP C

9. Attempt <u>any two</u> questions: (2×4=8)
   a. An square loop having 100 turns, an area $2.5×10^{-3}m^2$ and a resistance of 100Ω.The magnetic field has a magnitude of

0.4T.Find the work done in pulling the loop out of the field, slowly and uniformly in 1 sec.

b. Two resistors of resistance 1KΩ and 2KΩ are joined in series with a 100V supply. A voltmeter of internal resistance 4kΩ is connected to measure the potential difference across 1kΩ resistor. Calculate the potential difference measured by the voltmeter.

c. A parallel plate capacitor has plates of area 10cm^2 separated by a distance of 1 mm. It is filled with dielectric mica and connected to a battery of emf 6 volts. Find the leakage current through the capacitor. Resistivity of mica=1×10^{13}Ωm.

10. Attempt <u>any two</u> questions: (2×4=8)

a. An electron beam after being accelerated from rest through a potential difference of 5kV in a vacuum is allowed to impinge normally on a fixed surface. If the incident current is 50μA,determine the force exerted on the surface assuming that it brings the electrons to rest.(m=9.1×10^{-31}kg)

b. In a photoelectric experiment, it was found that the stopping potential decreases from 1.85V to 0.82V as the wavelength of the incident light is varied from 300nm to 400nm.Calculate the value of Planck's constant from these data.

c. Derive an expression for the magnetic field at the site of the nucleus in a hydrogen atom due to the circular motion of the electron. Assume that the atom is in its ground state and give answer in terms of fundamental constant.

11. **The interval between the flash of lightening and the sound of thunder is 2 seconds, when temperature is 10⁰C.How far is the storm if the velocity of sound in air at 0⁰C is 330m/s. (4)**

12. **In a two slit experiment, the slits are 0.200mm apart, and screen is at a distance of 1.00m.The third bright fringe is found at 9.49mm from the central fringe. Find the wavelength of light used. (3)**

The End

The Times Secondary School
Dillibazar, Kathmandu
First Terminal Examination – 2075

Grade: - XII   **Set – A**   Full Marks:- 75
Stream: Science   Pass Marks:-30
Subject: - Chemistry   Time : 3hrs

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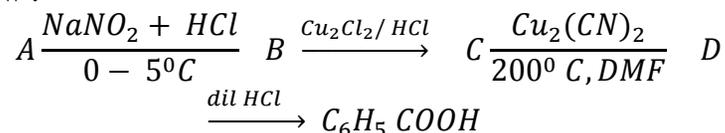
Group A

Attempt any fifteen questions.   [15×2=30]

1. Why sodium hydroxide is not regarded as a good subastance for preparation of standard solution? Explain.

2. Distinguish between equivalence point and end point of a reaction.

3. 1 lit of $1MH_2SO_4$ is mixed with 1 lit of 1M NaOH. Find the strength of the acid left and salt formed in molarity.

4. How is single electrode potential originated? explain

5. Define one faraday. How would you justify that the value of one faraday is 96500C.

6. Why is benzene so much less reactive than alkenes or alkynes towards reagents such as Br_2/CCl_4 and aq.$KMnO_4$?

7. Convert:
   a. Benzene into acetophenone.
   b. Benzene sulphonic acid into chlorobenzene.

8. Which of the following organic compounds have higher value of boiling points?
   a) sec-butylchloride
   b) tert-butylchloride.
   Explain your logic.

9. Give any two evident reactions for each which supports that $-NO_2$ and $-$ CN acts as ambident nucleophile.

10. Identify A , B, C and D in the following sequence of reaction below .

$$A \xrightarrow[0-5^0C]{NaNO_2+HCl} B \xrightarrow{Cu_2Cl_2/HCl} C \xrightarrow{Cu_2(CN)_2}{200^0\,C,DMF} D$$
$$\xrightarrow{dil\,HCl} C_6H_5\,COOH$$

11. How would you convert: a. C_6H_5Cl into C_6H_5OH b. C_6H_5Cl into $C_6H_5CONH_2$.

12. Why ring substitution reaction in chlorobenzene occurs at ortho and para positions? Explain.

13. Mention any two reactions to show that R-OH acts an acid as well as base.

14. What happens when ethanol is heated with iodine in presence of aq NaOH. Give the IUPAC name of major product so formed.

15. Explain the polarity of carbonyl group taking an example. How does it characterize the reactivity?

16. Define functional isomer. What are the functional isomer of $C_3H_6O_2$. Write down their structure and IUPAC names.

17. Account for the acidic property of carboxylic acid with reference to resonance stabilization

18. Give electronic configuration of copper. Why is copper used for making electrical wires and domestic cooking utensils? .

19. What happens when : a) NH_3 is passed over red hot CuO. b) zinc white is heated with cobalt nitrate.

20. Name any two important ores of copper with formulae. How will you obtain crystal of white vitriol?

21. How does zinc reacts with nitric acid in different conditions? Give necessary reactions.

22. Write molecular formula of: i) Philosopher's wool   ii) Lithopone . How are they prepared?

Group B

Attempt any five questions.   [5×5=25]

23. Define acidimetry and acidity of base giving an example. 10 gm of $BaCl_2.XH_2O$ is dissolved per litre solution in water. 15 ml of the solution requires 24.75ml of 0.05N $AgNO_3$ for complete precipitation. Calculate the value of X and determine equivalent weight and molecular weight of $BaCl_2.XH_2O$.
(at. wt of Ba = 137amu)   [1+4]

24. What is salt bridge? Mention its functions in electrochemical cell. You are given standard oxidation potentials of Cu/Cu^{++} and Fe/Fe^{++} as -0.34V and 0.44V respectively.
   a. Construct a Galvanic cell indicating cathode and anode.
   b. Write the cell reaction and calculate the Emf of cell.
   c. Which electrode acts as carrier of charge and why?

[2+3]

25. Explain why benzene undergoes electrophilic substitution reactions whereas alkenes undergoes addition reactions. Give the mechanism of all the electrophilic aromatic substitutions with reference to halogenation , nitration, sulphonation, alkylation and acylation.   [5]

26. A primary alkyl halide C_4H_9Br (A) reacts with hot alc.KOH to give compound (B). Compound (B) reacts with HBr to give (C) which is an isomer of A. When A reacts with Na metal in presence of dry ether gives $D(C_8H_{18})$ which is different than the compound when n-butyl bromide reacts with Na. Identify A , B ,C and D with IUPAC names and necessary stepwise chemical explation.
                                                                    [5]

27. Write down three isomeric monohydric alcohols from $C_4H_{10}O$ and give their IUPAC names. How would you apply Victor Meyer's method to distinguish them chemically? Explain.   [1+4]

28. The dehydrohalogenation of an organic compound (M) gives hydrocarbon (N) which on treatment with O_3 an intermediate compound (O) is obtained. The compound (O) on decomposition with Zn/H_2O , two molecule of propanal (P) are obtained. Compound (P) does not respond to iodoform test.Suggest the chemical equation with necessary explanation and identify M , N , O and P with their IUPAC names   [5]

29. Point out the important processes involved in the extraction of copper from its sulphide ore. Mention important uses of copper.[5]

Group C

Attempt any two questions.   [10×2=20]

30. a) How would you select the suitable indicators in acid base titration? Describe in detail. 200ml of 0.2M HCl is neutralized with 0.1M NaOH. Then during their half neutralization, what will be the molarity of HCl?   [4+2]

b) State Faraday's Ist and IInd laws of electrolysis. What volume of gaseous chloride would be produced at 745mmHg and 85^{0}C from the electrolysis of conc.brine solution if the process were 65% efficient and current of 1.5 amp was passed for 2hours. [4]

31. Describe with principle reactions, neat and well labeled diagram for the laboratory preparation of of pure and dry trichloromethane from ethanol and propanone using bleaching powder. How does trichloromethane react with
a. CH_3NH_2 and alc KOH   b. conc.HNO_3
c. phenol and alc KOH   d. aq Zn/HCl.   [6+4]

32. Write short note on (any two)
   a.   principles of volumetric analysis and normality equation.
   b.   Variation of conductances with dilution.
   c.   Nucleophilic substitution reactions of haloarenes.
   d.   Chemistry of zinc white.   [5+5]

The End

The Times Secondary School
Dillibazar, Kathmandu
First Terminal Examination – 2075

Grade: - XII   **Set –B**   Full Marks:-75
Stream: Science   Pass Marks:-30
Subject: - Chemistry   Time : 3hrs

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

Group A

Attempt any fifteen questions.   [15×2=30]

1. Why crystals of potassium permangnate is not regarded as a good substance for the preparation of standard solution? Explain.
2. Distinguish between neutralization titrations and permangnometric titration.
3. 100ml of 0.1M HCl is mixed with 50ml of 0.1M KOH. Calculate the concentration of acid in resulting solution in terms of gm/lit and %.
4. Define oxidation potential and reduction potential. Which is their use for predicting the feasibility of a reaction?
5. What do you mean by ECE of an element. ECE of Ag is 0.0001118gm/c .what does it signify?
6. Why open chain structure for benzene is ruled out? Mention any two evident facts for this ruled out structure of benzene .
7. Convert :
   a. Benzene into glyoxal
   b. Benzene into m- dinitrobenzene.
8. How do you distinguish chloroform and carbon tetrachloride chemically? Write reactions
9. Show your aquistance with iodoform test. How does it characterize functional group and alkyl group?
10. Identify A, B , C and D in the reaction below.

    $A \xrightarrow[0-5^0C]{NaNO_2 + HCl} B \xrightarrow{Cu_2Br_2/ HBr} C \xrightarrow{Cu_2(CN)_2}_{200^0 C,DMF} D$
    $\xrightarrow{conc.HCl} C_6H_5 CONH_2$

11. How would you convert C_6H_5Cl into C_6H_5COOH. Give necessary reactions.
12. Give an example of each of the following

    a. Wurtz Fitting reaction
    b. Sandmeyer reaction
13. Write a note on oxidative products of primary alcohol containing two carbon atoms and convert final oxidative product into ethylethanoate
14. Why carboxylic acids have higher boiling points than alcohols of comparable mass. Explain with suitable example.
15. The most important chemical reaction of carbonyl compound is nucleophilic addition. Explain this chemical behavior on functional group
16. Write the structure of possible isomer of aromatic compound C_7H_7Cl. Which of these have weakest C-Cl bond?
17. What is Rinmann's green? How it is prepared? Write its important uses.

18. Write the formula of following ores:
    a. magnetite
    b. calamine
    What happens when zinc white is heated?

19. A metal sulphate when heated gives yellow residue (X), oxygen and chocking smell gas (Y). The gas Y turns lime water milky. The yellow residue becomes white when cooled. Identify X and Y. write concerned reactions.

20. What happens when:
    a. copper is exposed to moist air for long time.
    b. anhydrous copper sulphate reacts with water.

21. How does red oxide of copper reacts with
    a. conc. H_2SO_4
    b. conc. HNO_3
    c. dil. HNO_3.

22. A compound of copper (II) which is insoluble in water but soluble in HCl . How can you justify that hydroxide of same metal ion acts as mild oxidizing agents in organic reaction? Give reactions

Group B

Attempt any five questions.   [5×5=25]

23. Define alkalimetry and basicity of acid giving an example. 0.5 gm of a mixture of NH_4Cl and NaCl was boiled with 25 ml of 0.95N NaOH in a vessel till all ammonia is expelled out. The residual solution was cooled and then made up to 100ml. It was found that 10 ml of diluted residual solution neutralize 16 ml of standard N/10(f=1.06) H_2SO_4. Calculate % of pure NH_4Cl in the mixture. Which indicator can be selected as a best indicator in above process and why?   [1+4]

24. What is SHE? Write its half cell reaction and cell notation according to IUPAC convention when it acts cathode as well as anode. The standard oxidation potentials for the following electrodes are $E^O_{Zn/Zn^{++}}$ =0.76V and $E^0_{Fe^{++}/Fe^{+++}}$ = -0.77V.
    a. Represent a suitable galvanic cell and point out which one will be cathode?
    b. What will be the Emf of cell with 1M solution of ions?
    c. Write half cell reactions and spontaneous overall cell reaction.   [2+3]

25. State Huckel's rule of aromaticity. Explain briefly substitution and addition reactions of benzene.   [5]

26. A primary haloalkane (A) C_3H_7Br with alcoholic potash gives (B). (B) on oxidation gives (C) along with water and carbondioxide . The ozonolysis of (B) yields (M) and (N). (M) responds to +ve iodoform test and with HBr (B) gives (P). Identify the compounds A , B , C , D , M , N and P with their IUPAC names using necessary explanations.   [5]

27. Write the structure of propan-1-ol, propan-2-ol and 2-methyl propan-2-ol. How would you apply Lucas test and Victor Meyer test to distinguish them. Write concerned reaction.   [1+4]

28. The dhydrohalogenation of an organic compound (X) gives hydrocarbon (Y) which on treatment with O_3 , intermediate compound (Z) is obtained . The compound (Z) on decomposition with Zn/H_2O , two molecules of propanone are obtained that gives

29. Explain the principle , process and sketching a well labeled diagram for the extraction of zinc from its principal ore. What happens when $Zn^{++}_{(aq)}$ is passed over aq. NaOH dropwise till excess.   [4+1]

Group C

Attempt any two questions.   [10×2=20]

30. a. Explain important points of principles o volumetric analysis. How these principles are applied to derive $N_1V_1 = N_2V_2$ [4]

    b. 0.84gm of acid of molecular weight 150 was dissolved in water and made up to 100 ml . 25 ml of this solution required 28 ml of N/10 NaOH solution for complete neutralization. Calculate basicity of acid.   [3]

    c. Chromium metal can be plated out from an acidic solution containing CrO_3 at cathode.   [3]

    i.   Write the reaction at cathode.
    ii. How many gm of Cr will be plated out by 2400C?
    iii. How long will it take to plate out 1.5 gm of Cr by using 12.5 ampere current? (at. Wt. of Cr =52amu)

31. Describe with principle reactions, neat and well labeled explanatory diagram for laboratory preparation of pure chloroform from acetone and ethanol using bleaching powder. How does chloroform reacts with a) primary amine. b) Phenol. Convert: i)chloroform to iodoform and ii)chloroform to ethanol.   [6+4]

32. Write short note (on any two)
        i.   Chemistry of redox titration.
        ii. Electrochemical series and its applications.
        iii. General methods of preparation of haloarenes.
        iv. Chemistry of blue vitriol.   [5+5]

The End

The Times Secondary School
Dillibazar, Kathmandu
First Terminal Examination – 2075

Grade: - XII	**Set – A**	Full Marks:-75
Stream: Science		Pass Marks:-30
Subject: - Biology		Time : 3 hrs

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

Use separate answer sheets for Group A and Group B

Group A "Botany"

1. Answer in very short **(any seven).**   (7×1=7)
   a. What is ascent of sap?
   b. Define photosynthesis.
   c. What is deplasmolysis?
   d. What is the function of lysozyme enzyme?
   e. Define variation.
   f. What is genotype ratio of dihybrid cross?
   g. Define codominance.
   h. Define gootee.
   i. What is autogamy?
   j. Define siphonogamy.

2. Answer in brief **(any five).**   (5×3=15)
   a. Differentiate between transpiration and guttation.
   b. Describe types and function of parenchyma.
   c. What is Mendel's law of segregation? Describe with an example(punnett square).
   d. Differentiate between lytic and lysogenic cycle
   e. What is entomophily? Describe the features of entomophilous flower.
   f. Describe the development of dicot embryo.
   g. Describe the types of vascular bundle.

3. Describe the mechanism of transpiration in detail with necessary diagram.   (7.5)

   Or

   Describe the anatomy of monocot root and differentiate it with dicot root.

4. What is bacterial transformation?Describe the experiment to prove "DNA as a genetic material".   (8)

Group B "Zoology"

1. Answer in very short **(any seven).**   (7×1=7)
   a. Name the muscles involved in inspiration.
   b. Give the location of transitional epithelium.
   c. Where is the "Sphincter of Oddi" located?
   d. What is meant by psychedelic drugs?
   e. Define Residual volume.
   f. Name the part of eye which contains only cone cells.
   g. Why is ileum suitable for absorption of food?
   h. Give the full form of BCG.
   i. What is meant by chloride shift?
   j. Why is vitamin C known as beauty vitamin?

2. Answer in brief **(any five).**   (5×3=15)
   a. Mention the role of diaphragm in respiration.
   b. Discuss about Kwashiorkor and Marasmus.
   c. Differentiate between voluntary and involuntary muscles,
   d. Discuss different ways of transmission of AIDS.
   e. How is oxygen transported in human body? Explain.
   f. Describe the structure of a typical human tooth.
   g. Discuss the effects of alcoholism on health.

3. Describe the structure of human kidney with necessary diagrams   (7.5)

   Or

   Describe the structure and function of human ear with a well labeled diagram.

4. What are communicable diseases? Describe the causative agent, mode of infection, symptoms and control measures of Typhoid.   (1+7=8)

The End

The Times Secondary School
Dillibazar, Kathmandu
First Terminal Examination – 2075

Grade: - XII   **Set – B**   Full Marks:-75
Stream: Science   Pass Marks:-30
Subject: - Biology   Time : 3 hrs

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

Use separate answer sheets for Group A and Group B

Group A "Botany"

1. Answer in very short **(any seven).**   (7×1=7)
   a. Define plasmolysis.
   b. What is imbibition?
   c. Name the dead tissue.
   d. Define passage cell.
   e. What is piliferous layer?
   f. What is the function of nuclease enzyme?
   g. What is allele?
   h. Define double fertilization.
   i. What do you understand by geitonogamy?
   j. Define porogamy.

2. Answer in brief **(any five).**   (5×3=15)
   a. Write down the significance of transpiration.
   b. Describe the characters of mesophyll tissue.
   c. Describe the law of incomplete dominance with an example.
   d. Differenciate between bacterial transformation and bacterial transduction.
   e. Describe the development of monocot embryo.
   f. Define pollination.Explain different types of pollination.
   g. Describe the structure and function of stomata.

3. Describe anatomy of dicot stem and differentiate it with monocot stem.   (7.5)

                     Or

   Describe ascent of sap in detail with necessary diagram.

4. What is dihybrid cross? Describe it with example.   (8)

Group B "Zoology"

1. Answer in very short **(any seven).**   (7×1=7)
   a. Define the term Tidal Volume.
   b. Name the storage form of carbohydrates in human body.
   c. Which part of eye acts as gate keeper?
   d. Give the full form of LSD.
   e. What are nephrons?
   f. Mention two importance of minerals.
   g. Name the ear ossicles of human ear.
   h. Give any two functions of cuboidal epithelium.
   i. List out any two diseases caused by smoking.
   j. Name the parts of kidney which lie on the cortex.

2. Answer in brief **(any five).**   (5×3=15)
   a. Give an account of histological structure of human lung.
   b. Differentiate between Rods and Cones.
   c. What are vitamins? Give an account on water soluble vitamins.
   d. Discuss the symptoms and control measures of Tuberculosis.
   e. Draw a well labeled diagram of L.S. of human kidney (no description required).
   f. Give an account of cardiac muscles.
   g. "Proteins are known as body building food." Justify.

3. What is cancer? Discuss the types, causative agents, symptoms and treatment of cancer.   (1+6.5=7.5)

                     Or

   Describe alimentary canal of human with necessary diagrams.

4. Define respiration. Discuss briefly the physiology of respiration in human.   (1+7=8)

The End

The Times Secondary School
Dillibazar, Kathmandu
First Terminal Examination – 2075
Grade: XII   **Set A**   Full Marks: 100
Stream: Science   Pass Marks: 40
Subject: Mathematics(216)   Time: 3 hrs

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

Group A

1. (a) In how many ways the letters of the word can be 'MATHEMATICS' arranged ?
[2]

(b) How many numbers are there between 100 and 1000 such that every   digit is either 2 or 9?
[2]

(c) Find the term independent of x in the expansion of $\left(x^2 + \dfrac{1}{2x} \right)^{12}$.[2]

2. (a) prove that: $\dfrac{3}{4} + \dfrac{3.5}{4.8} + \dfrac{3.5.7}{4.8.12} + \ldots\ldots\ldots\ldots\ldots = 2\sqrt{2}$
[2]

(b) Show that the operation of addition is not binary on S = {−1,0,1}.[2]

(c) Let G = { 0, 1, 2}.Form a composition table G under the multiplication modulo 3.Find the identity element of 2.
[2]

3. (a) Determine the focus and directrix of the parabola $y^2 = 4ax$.
[2]

(b) For what value of a will the straight line y = 2x − 3 touches the parabola $y^2 = 4ax$.
[2]

(c) Find the ratio in which the line joining the points (2,− 4, 7) and (3,5,−8) is divided by the yz-plane.
[2]

4. (a) Find direction cosines of a line equally inclined of the axes
[2]

(b) Find the equation of the plane passes through the point (−1, 3, − 2) and parallel to the plane 3x −4y +5z = 0.
[2]

(c) Find the angle between the pair of planes x − 2y − z+7 = 0 and 2x + z + 13 = 0.
[2]

5. (a) Find the derivative of $(x)^{\cos h\frac{x}{a}}$
[2]

(b) Find the derivative of y = x^y.
[2]

(c) Integrate: $\int \dfrac{dx}{1+x+x^2}$
[2]

6. Show that the number of ways in which the letters of the word "ARRANGE" can be arranged so that the two R's always come together is 900.
[4]

7. In how many ways can a man invite five friends to a dinner so that one
or   more than one of his friends remain present?
[4]

8. Find the value of $\dfrac{1}{2} \cdot \dfrac{1}{3} - \dfrac{1}{4} \cdot \dfrac{1}{3^2} + \dfrac{1}{6} \cdot \dfrac{1}{3^3}\ldots\ldots\ldots\ldots+.\infty$
[4]

9. If a and b are the elements of a group (G,0).Then $a \circ x = b$ has unique solutions in (G,0)
[4]

10. Find the equation of the tangent and the normal to the parabola $y^2 = 5x$ perpendicular to the line x + 2y=0.
[4]

11. Find the direction cosines l, m, n of two lines which satisfy the
equations: l + m + n = 0 and 2lm −mn + 2nl = 0.
[4]

12. Find the equation of the plane through the point (2, 1, 4) and perpendicular to the planes 9x − 7y +6z +48 =0 and x + y+z = 0.
[4]

13. Find the derivatives of $x^p \cdot y^q = (x + y)^{p+q}$
[4]

14. Integrate: $\int \dfrac{dx}{2 + sinx}$.
[4]

15. Integrate: $\int \dfrac{1}{(a^2 + x^2).(b^2 + x^2)}.dx$
[4]

Group B

16. If $(1+x)^n = C_0 + C_1 x + C_2 x^2 + \ldots\ldots\ldots + C_n x^n$, prove that

$$C_o + 3C_1 + 5C_2 + \ldots\ldots + (2n + 1) C_n = (n+1)2^n$$

[6]

17. Prove that the locus of the middle points of the chords of the parabola $y^2 = 4ax$ which pass through the focus is a parabola.

[6]

18. A line makes $A, B, C \text{ and } D$ with the four diagonals of a cube, prove

that $\cos^2 A + \cos^2 B + \cos^2 C + \cos^2 D = \dfrac{4}{3}$.

[6]

19. Find, from first principle, the derivative of $\sin (\log x)$

[6]

20. State Rolle 's Theorem. Interpret it geometrically. Verify Rolle's theorem for $f(x) = x(x-1)^2$ in $[0,1]$

[6]

The End

The Times Secondary School
Dillibazar, Kathmandu
First Terminal Examination – 2075

Grade: XII   Set B   **Full Marks: 100**
Stream: Science   **Pass Marks: 40**
Subject: Mathematics (216)   **Time: 3 hrs**

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

Group A

1. (a) In how many ways the letters of the word MISSISSIPPI can be arranged ?
   [2]

   (b) From 10 persons, in how many ways can a selection of 4 be made when one particular person is always included ?
   [2]

   (c) Find the coefficient of x^5 in the expansion of $\left(x + \dfrac{1}{2x}\right)^7$.
   [2]

2. (a) prove that: $\dfrac{1}{1.2} + \dfrac{1}{2.2^2} + \dfrac{1}{3.2^3} + \ldots\ldots\ldots\ldots\ldots = \log_e 2$
   [2]

   (b) The set $G = \{1, w, w^2\}$ where w represents the cube root of unity; prepare cayley'a table representing the binary operation of ordinary multiplication.
   [2]

   (c) Show that the set $s = \{-1, 0, 1\}$ is not a binary operation sunder addition.
   [2]

3. (a) Determine the focus and directrix of the parabola $x^2 = 4ay$.
   [2]

   (b) For what value of a will the straight line $y = 2x + 3$ touches the parabola $y^2 = 4ax$.
   [2]

   (c) Find the ratio in which the line joining the points $(-2, 4, 7)$ and $(3,-5,-8)$ is divided by the xy-plane.
   [2]

4. (a) show that the direction cosines of a line equally inclined of the axes are $\pm\dfrac{1}{\sqrt{3}}, \pm\dfrac{1}{\sqrt{3}}, \pm\dfrac{1}{\sqrt{3}}$.
   [2]

   (b) Find the equation of the plane passes through the point $(1, 2, 3)$ and parallel to the plane $3x -4y +5z =0$.
   [2]

   (c) Find the angle between the pair of planes $x + 2y + z+7 = 0$ and $2x + y -z+ 13 = 0$.
   [2]

5. (a) Find the derivative of $(x)^{\cos h^2 \frac{x}{a}}$
   [2]

   (b) Find the derivative of $y = x^y$.
   [2]

   (c) Integrate: $\int \dfrac{dx}{1+x-x^2}$
   [2]

6. Show that the number of ways in which the letters of the word "COLLEGE" can be arranged so that the two E's always come together.
   [4]

7. Find number of ways of selecting at least 4 candidates from 8 candidates.
   [4]

8. Prove that: $1+ \dfrac{3}{1!} + \dfrac{5}{2!} + \dfrac{7}{3!} +\ldots\ldots\ldots\ldots\infty = 3e$.
   [4]

9. Show that the set of all positive rational numbers from an abelian group under the composition defined by $a_0 b = \dfrac{ab}{2}$
   [4]

10. Find the equations of the common tangents of $y^2 = 4ax$ and $x^2 = 4by$.
    [4]

11. Find the direction cosines l, m, n of two lines which satisfy the equations: $l + m + n = 0$ and $l^2 + m^2 - n^2 = 0$.
    [4]

12. Find the equation of the plane through the point $(1, 2, 3)$ and normal to the planes $x - y -z = 5$ and $2x - 5y -3z = 7$.
    [4]

13. Find the derivatives of $x^m . y^n = (x + y)^{m+n}$
    [4]

14. Integrate: $\int \dfrac{x+2}{\sqrt{x^2+x+1}}.dx$
    [4]

15. Integrate: $\int \dfrac{1}{(x+2).(x+3)^2}.dx$
    [4]

Group B

16. If $(1+x)^n = c_o + c_1x + c_2x^2 + \ldots\ldots + c_n x^n$, prove that

$$c_oc_n + c_1c_{n-1} + \ldots\ldots + c_n c_o = \frac{2n!}{n!n!}$$

[6]

17. If a normal chord of a parabola $y^2 = 4ax$ subtends a right angle at the vertex, show that it is inclined at an angle $\tan^{-1}\sqrt{2}$ to the axis.

[6]

18. A line makes $\alpha, \beta, \gamma \text{ and } \delta$ with the four diagonals of a cube, prove that

$$\cos^2\alpha + \cos^2\beta + \cos^2\gamma + \cos^2\delta = \frac{4}{3}.$$

[6]

19. Find, from first principle, the derivative of $ln(\cos^{-1}x)$

[6]

20. State means value theorem. Interpret it geometrically. Verify mean value theorem for $f(x) = x^3 + x^2 - 6x$ in $[-1, 4]$

[6]

The End