Open Test - 2075 (Magh)

Class: XII(Science)
Time: 3 Hrs

English

Set A

Attempt all these questions:

1. Answer any two of the following: 2×5= 10
   a. Would you call the narrator a mad person? (The Tell-Tale Heart)
   b. What is the main similarity between male entrepreneurs and female entrepreneurs? (Women's Business)

2. Change the following sentences, using supposed to: 1×5= 5
   a. People say Tara was an insomniac.
   b. Apparently, Alsatians make good pets.
   c. I am told that the taxes are going up.
   d. I hear that Jeevan was born on the day of the earthquake.
   e. They say that it is unlucky to walk under the ladder.

3. Complete the following sentences: 1×5= 5
   a. When you pull a rubber strip, it …………..
   b. When the sun shines, the dews ………
   c. When you leave liquid cement on the ground, it …………..
   d. Add coffee in hot water and leave it to …………
   e. When you pour cold water in a hot metal, it …………

4. "The school is not the only place to learn." How far do you agree? 5

Set B

1. Answer any two of the following: 2×5= 10
   a. Sketch the character of the boy. (The Tell-Tale Heart)
   b. What is hypocritical about Lydia E. Pinkham? (Women's Business)

2. Change the following sentences, using likely to, unlikely to, certain to and sure to: 1×5= 5
   a. He probably won't come.
   b. By the end of the century, cars will probably be obsolete.
   c. There will definitely be a few tickets left.
   a. I doubt if the workers will go on strike.
   b. I am sure a new chairperson will be appointed soon.

3. Use supposed to, I hear or people say to answer the questions below: 1×5= 5
   a. I wonder what's happening in New Zealand.
   b. What do you think Rihanna is like as a person?
   c. I wonder what it is like to be the Prime Minister.
   d. What does it feel like to be hypnotized?
   e. Do yaou know anything about life in ancient Nepal?

4. "Social networks make people irresponsible." How far do you agree? 5

Nepali

Set A

१. भोकमरीबाट बच्न नेपालमा के कस्ता उपाय गर्नु पर्ला ? 'खाद्य सङ्कट र जैविक विविधता' निबन्धलाई आधार बनाएर प्रतिक्रिया दिनुहोस् । ५

२. तलको कथांश पढी सोधिएका प्रश्नहरुको उत्तर दिनुहोस् : ५
यो कुरा अवश्य घुरहुको सर्वमान्यतामा चोट थियो । हो, सबैका लागि मनोहर आज उद्यत् छन् । घुरहुले पनि बुझे अरु सारोले पनि थाहा पाए । तर तयफवा चुप लागी बस्न सकिन । उसले भनी, "मनोहर दाइ, कुरो नबढाउनुहोस् तपाईका छोरा र तपाईको पनि आँखा सोनवामाथि गडिरहेको अरुले नबुझे पनि हामी आइमाईले थाहा नपाउने होइनौं । ठूलो हुँदैमा अर्काको इज्जत नमान्ने अख्तियार कसैको हँदन । सोनवालाई पढाई नै दिनुपर्छ ।"
प्रश्नहरु

क. घुरुको सर्वमान्यतामा कसरी चोट लाग्यो ?

ख. मनोहरको भावना ककसले बुझे ?

ग. तयफवाले भावना ककसले बुझे ?

घ. ठुलो हुँदैमा के गर्न पाइँदैन र किन ?

ङ. यस कथांशले कस कसका बीच टक्कर देखाउन खोजेको छ ?

३. तलको कुनै एक शीर्षकमा २५० शब्दमा नघटाई निबन्ध लेख्नुहोस् १०

क. नेपालमा प्राकृतिक सम्पदाहरु

ख. मलाई मन परेको पुस्तक

ग. यातायातको महत्त्व

४. तलको कुनै एक शीर्षकमा १५० शब्द सम्ममा टिप्पणी लेख्नुहोस् ५

क. राज्य पुनसंरचना र नेपालको भविष्य

ख. वैदेशिक रोजगारीप्रतिको आकर्षण

५. विदेशी संस्कृतिको अन्धानुकरण रोक्न सुझाव दिँदै सम्पादकलाई एउटा चिठी लेख्नुहोस् । ५

६. तलका रेखाङ्कित शब्दहरुका कारक पहिचान गरी लेख्नुहोस् : ६
झोलामा भएको त्यो कलम बुबाले मलाई विदेशबाट ल्याइदिनु भएको हो । म यो कलम कसैलाई दिन्न । मैले त्यसले एउटा निबन्ध लेखेर पत्रिकामा पठाएँ ।

७. तलका शब्दहरुका अक्षर संरचना र सङ्ख्या देखाउनुहोस् । ५
औपचारिक, सूर्योदय, रमरम, कृषि, बडामहाराजाधिराज

८. तलका वाक्यलाई अभ्यस्त भूतकालमा परिवर्तन गर्नुहोस्:
म सधैँ बिदामा घुम्न जान्छु । घर फर्केर म बुबा आमालाई भेट्छु । म केही दिन गाउँमा बस्छु । आफ्नो गाउँमा बस्न पाउँदा मलाई अति आनन्द लाग्छ । स्कुल लगेपछि म फेरी सहर फर्कन्छु ।

९. तलको अनुच्छेदबाट दुईओटा उपसर्ग व्युत्पन्न शब्द र दुईओटा प्रत्यय व्युत्पन्न शब्द पहिचान गरी लेख्नुहोस् :
जैविक विविधताले मानवीय शान्तिमा मात्र होइन, उसका सामाजिक गतिविधिमा पनि प्रभाव पारेको छ । अपराध र घृणित दुष्कर्मप्रति समर्पित कतिपय बेइमान सञ्चाललहरुले स्वदेशी सिपालु मानिसलाई चिन्नै नसकी विदेशी वस्तुलाई प्रयोग गर्ने गरेको पाइन्छ ।

१०. तलको अनुच्छेदबाट दुई दुईओटा तत्सम र आगन्तुक शब्द खोजी लेख्नुहोस् : २
विद्यार्थीको सर्टिफिकेट कोठाको बाकसमा हुन्छ । भलादमीको प्रमाणपत्र सधैँ उसका शरीर उपर विज्ञापन जाहेरी गर्दछ । पोसाक मात्र पहिला पास हो ।

Set B

१. तल दिएको वाक्यलाई शुद्धगरी सार्नुहोस् ५
अहिलेको खाद्य सङ्कट खडा गर्ने मुल कारन अर्थ बजार हो । यस्को मुल जड किर्षि उपजलाई उर्जामा खपत गर्ने कार्यमा गडेको छ ।

२. तल दिएका वाक्यलाई एउटै वाक्यमा संस्लेषण गर्नुहोस् ४
राम बहादुर आए । राम बहादुरले लतमायालाई भेटे । राम बहादुरले सुब्बाको सन्देश सुनाए । रामबहादुर सरासर हिँडे ।

३. आवश्यक कुरा थपघट गरी तलमा वाक्यहरुको वाच्य परिवर्तन गर्नुहोस् ६
हामीले नेपाली पढेका छौँ । परीक्षाको राम्रो तयारी गरिएको छ । आफ्नो विद्यालयमा पटक पटक परीक्षा दिइएको छ । हामी परीक्षासँग डराउँदैनौँ । कलेजमा राम्रो वातावरण पाइएको छ । अब हामी भविष्य राम्रो बनाउँछौँ ।

४. दिएका शीर्षकमा २५० शब्दमा नघटाई निबन्ध लेख्नुहोस् १०
क. नेपालको आर्थिक विकासमा पर्यटन उद्योगको भूमिका
ख. मेरो पृथ्वी मेरो देश

५. दिएका शीर्षकमा १५० शब्दसम्मको टिप्पणी लेख्नुहोस् ५
क. लोकतन्त्र र अनुशासन
ख. आजका विद्यार्थीको गन्तव्य

६. राजमार्गमा भएको कुनै बस दुर्घटनाको प्रतिवेदन तयार गर्नुहोस् ५

७. तलदिएको अनुच्छेद पढी सोधिएका प्रश्नको उत्तर दिनुहोस् ५
एक केजी मासु उत्पादन गर्न १० केजी शाहाकारी भोजन खपत हुन्छ । अर्थात, एक मांशाहारीले १० गरिब शाहाकारीको खाना हर्छुछ । धनी र सम्पन्न वर्गकै इन्धन, ऊर्जा र आहारामा गरिबहरुले पिल्सिनु पर्ने र भोकमारी बेहोर्नु पर्ने स्थिति खडा भएको छ । यसको दोष ग्लोबल वार्मिङमा थोपर्ने प्रवृति पनि छ । जे होस् भोलिको सङ्घर्ष भोकमा आधारित हुने कुरालाई यतिकै नकार्न मिल्दैन ।

प्रश्नहरू

क. मांसाहारका कारणबाट पर्ने खाद्य असर के हो ?

ख. ' भोलिको संघर्ष भोकमा आधारित हुन्छ ' भन्नुको तात्पर्य के हो ?

ग. गरिबहरु के कारणले भोकमरी बेहोर्नुपर्नै अवस्थामा पुग्छन ?

घ. भू-मण्डलीय उठणता भन्नाले के बुझिन्छ ?

ङ. यस अनुच्छेदको मुख्य आशय के हो ?

८. 'हारजित' कथामा मनोहर र घुरहु महतो दुईमध्ये कसको जित भएको ठान्नु हुन्छ ? आफ्नो प्रतिक्रिया दिनुहोस् ।   ५

९. उ.मा.वि. ले निकट भविष्यमा शिक्षण शुल्क वृद्धि गर्नेबारे पत्रपत्रिकामा आएका समाचारलाई विषय बनाई सम्पादकलाई चिठ्ठी लेख्नुहोस् ।   ५

Physics

1. Derive Bragg's law & explain how this law is used to determine the crystal plane spacing.
2. Define binding energy. Draw a graph showing the relation between the binding energy per nucleon and atomic number.
3. A city repulses 10^7 watts of electrical power on the average. If this is to be supplied by a nuclear reactor of efficiency 20% using 92^{0235} as they fuel source, calculate the amount of fuel required per day. (Energy released per fission 92^{0235}=200 MeV
4. Calculate the apparent frequently observed by stationary observer. When source is moving towards & passing away from stationary observer.
5. Define beats? Show that the time interval between two maximum intensity of sound is equal to the time interval between two minimum intensity of sound.
6. The sound intensity level from a loudspeaker is 100 dB at a distance of 10 m. What is its intensity level at a distance of 200 m?
7. Discuss the phase relationship between the voltage & current in a.c. circuit containing inductance & resistance.
8. State Lenz's law & explain how this las leads to the conservation of energy principle.
9. A step down transforms a supply line voltage 220 volts into 100 volts, Primary coil has 500 turns. The efficiency & power transmitted by the transformer are 80% & 80 kw. Find
   a. the number turns in the secondary coil
   b. Power supplied.
10. A metal plate weighing 200 g is to be electroplated with 5% of its weight in silver. If the electroplate in 12 hrs. What is the value of current to be passed through the electroplate? (e.c.e. of silver=0.001118 g/c)
11. What is Wheatstone bridge?
12. What is a meter bridge? How can you measure an unknown resistance using Meter bridge?

Chemistry

Very Short Questions   2 Marks each

1. Define standard enthalpy of formation. If heat change for the following reaction is 1648Kj, what is the standard enthalpy of formation of Fe_2O_3?
   $4Fe_{(5)}+3O_{2(9)}\rightarrow 2Fe_2O_{3(5)}$.
2. Give reason:
   a. Gases have the highest absolute entropy among the three states of matter.
   b. Decrease in enthalpy is the sole criterion for feasibility of a process.
3. A reaction is 1st order w.r. to of and 11nd order w.r. to B.
   a. Write the rate bw equation.
   b. How many times will the rate increase when the concentration of Bis tripled?
4. Calculate the P^H of an aqueous solution containing 10^{-7} moles of NaOH per liter.
5. Show your acquaintance with following reactions.
   a. Benzoin condensation
   b. Perkin's reaction.
6. What happens when phenol is treated with bromine water?
7. Give a chemical test with reaction to distinguish ethanal and propanone.
8. How can you convert ethoxyethane into methoxymethane?

Short Questions   5 Marks each

1. State Hess's law of constant heat summation. Heat of combustion of benzene (C_6H_6) is -3280 KJ. Heat of formation of CO_2 and H_2O are -395 KJ and -286 KJ respectively. Calculate the heat of formation of benzene.
2. Define Gibb's free energy. How is the feasibility of exothermic and endothermic reactions predicted in the light of free energy change and entropy change?
3. What is meant by normality factor? How many ml of conc. HNO_3 of specific gravity 1.41 containing 69% by mass are required to prepare 500 ml of 0.5N HNO_3?
4. What are the general method of preparation of ketones?

5. An organic compound (A) reacts with HCN to give (B). On hydrolysis of (B) in acidic medium gives (C). Compound (A) also produces propane when treated with zn-Hg and conc HCL. Identify A, B and C with reactions and give their IUPAC name. What product would you expect when (A) is treated with trichloroethane in alkaline medium?
6. How can you separate primary secondary and tertiary amines from their mixture by Hoffmann method?
7. What happens when nitrobenzene is reduced in following medium?
   a. Acidic medium
   b. Alkaline medium
   c. Neutral medium

Very Short
1. What is the effect of heat on copper sulphate pentahydrate?
2. Write the action of mercury on aquaregia.
3. What is meant by copper matte?

Short Questions
1. Write down the chemistry of blue vitriol.
2. What is rusting? Describe electrochemical theory of rusting of iron. List any two method of prevention of rusting.

Zoology

Long Questions
1. What is aerobic respiration? Describe pulmonary respiration in human with suitable diagram.
2. Describe the physiology of digestion in Human being.
3. Give an account of structure of working mechanism of human heart.
4. Give an account of the retina in human eye & mention its working mechanism.

Short Questions   **3 Marks each**
1. Draw a neatly labeled diagram of neuron.
2. Describe kidney as a homeostatic organ.
3. Explain the phenomenon of reflex action.
4. Describe the action of different proteolytic enzymes.

5. Give an account in menstrual cycle.
6. The role of iris in image formation.
7. Describe structure of function of adrenal gland.
8. Differentiate between inspiration & expiration.

Very Short   **1 Marks each**
1. Define the term deamination.
2. Write the name of one mixed & one motor nerve.
3. What is the most toxic excretory product produced in the body.
4. Name sensory cranial nerve.
5. Why blind spot of retina cannot from image?
6. What the functions of heparin & histamine.
7. Mention the role of acrosome.
8. Why are bones brittle in old age?
9. Define the term peristalsis.
10 What are essential enzymes to digest oil?

Botany

Short Questions   **3 Marks each**
1. Explain gene expression in virus.
2. Explain Lac Operon concept.
3. What are the function affecting Ascent of sap?
4. Differentiate between transpiration and Gultation.
5. What is promoter gene? Explain one gene one enzyme hypothesis.
6. Why men I unable to pass on rex linked gene to his son?
7. Differentiate between secondary growth in Dicot stem and Dicot root.
8. Describe gene expression in prokaryotes.
9. Define mutation. Point out the result of mutation.
10. How is the wheat variety developed? Explain.

Long Questions   **7 Marks each**
1. Justify that DNA is a genetic malarial by Griffith's experiment.
2. What is Chargaff's rule? Differentiate between DNA and RNA.
3. What is crossing ever? What are the factors affecting crossing over and write down its significance?
4. Explain that CO_2 in evolved during aerobic respiration.
5. Differentiate between C_3 plants and C_4 plants.

6. Define osmosis. What are its types and the factors affecting osmosis? Write down its significance.

1. Define cambium.
2. What are the roles of meristem?
3. Write full form of J.S 6.
4. What is hybridization?
5. What is genetic malocial?
6. What is a regulator gene?
7. Define linkage.
8. Define mutation.
9. Define genetic code.
10. What is Punnett square?

Math

1. Prove that: $\frac{2}{1!} + \frac{4}{3!} + \frac{6}{5!} + \ldots\ldots\ldots\ldots$ to $\infty = e$ 2
2. If n=15, $\sigma x = 3.2$, $\sigma y = 3.4$ and $\sum(x - \bar{x})(y - \bar{y}) = 122$, find the correlation coefficient between two variables.   2
3. Evaluate: $\int \sqrt{2ax - x^2}\ dx$.   2
4. Solve: $\frac{dy}{dx} + 4x = 2e^{2x}$.   2
5. If $\vec{a} + \vec{b} + \vec{c} = 0$, prove that $\vec{a} \times \vec{b} = \vec{b} \times \vec{c} = \vec{c} \times \vec{a}$.   2
6. Find the angle between the two lines whose direction ratios are 2,3, 4 and 1, -2, 1.   2
7. Calculate coefficient of skewness based on mean, mode and the standard deviation from the following date: 4

Weight (in Rs)	100	110	120	130	140
No. of persons	2	6	10	8	4

8. Find the correlation coefficients between the two variables X and Y from the following data: 4

X	5	7	1	3	4
Y	2	3	4	5	6

9. Evaluate: $\int \frac{dx}{35Sinx - 4Cosx}$.   4

10. Solve: $\frac{dy}{dx} + \frac{x^2 - y^2}{3xy} = 0$ 4

11. Solve the following using Gauss elimination method: x+y+z=6, 3x-4y=-5, 4z-3x+2y=13.   4

12. Find the angle between the two lines whose direction cosines are given by l+m+n=0 and 2lm+2ln-mn=0.   4

13. Using simplex Method, maximize   Z=7x+5y   6
        Subject to
        X+2y≤ 6
        4x+3y≤12
        X,y≥0.

14. Define vector product of two vectors. Interpret the vector product of two vectors geometrically. Prove, in any triangle, by vector method.   6
$\frac{Sin\ A}{a} = \frac{Sin\ B}{b} = \frac{Sin\ C}{C}$.

15. Using vectors, in any triangle ABC, prove that   6
   a. $b^2 = c^2 + a^2 - 2ca\cos B$
   b. $c = a\cos B + b\cos A$.

16. Solve the following equations by Matrix inversion method, 3x+y+z=15; x+y+z=3; y-z=-1   6

The End