Class XII ENGLISH

Answer the following Questions

A) Short question answer

1. How does the young man understand the value of neighbours at the end of the story?
2.Describe the image of Gouvernail Mrs. Baroda had before she met him.
3. Briefly describe the character of Rakesh as an "anti- hero."
4. How does the poet explore the beauty of nature. (A Day)
5. What sort of determination does the poet show in the poem 'I Was My Own Route?'

B) Long question answer.

1. In the essay 'On Libraries' Oliver Sacks talks about two types of libraries. Of them, which library impresses you much? Why?
2. Discuss the six dimensions of normative marriage in America.(Marriage as a social institution)
3. According to the Famous Actress, men associated with theatre use the theater actresses to make their estranged wives jealous so as to woo them back. Do you agree with her argument? Why? Why not?

C. Free writing

1.Write a job application for the post of junior accountant lying vacant in ABC bank mentioning your relevant experiences and qualifications that prove your strengths.
2.Parents generally devote their lives in shaping their children's future. Therefore, they expect more from them. Do you agree? Write an essay in about 300 words.
3."Write a press release on behalf of Nepal Airlines regarding the temporary suspension of its flights."

4. Do as indicated in the brackets and rewrite the following sentences:

a. Our students performed ….in the Welcome program of 2080. (Complete the sentence with an appropriate adverb.)
b. You'd better not shout in the class,….? Add appropriate tag to the given sentence.)
c. My father, along with his friends,…..(has, have, was, were) enjoying party. (Put the correct verb in the blank.)
d. Look! The man is laughing and shouting insanely in the street. He…(can/must/will/would) be mad. (Choose the correct option from the bracket to complete the sentence.)
e. She gave me **a pen. (**Develop a wh-question that answers the highlighted words.)
f. If he had worked hard, he….(will pass, would pass, would have passed) the exam. (Choose the correct option from the bracket to complete the sentence.)
g. ….being tired, I didn't go to bed early. (Put the correct conjunction in the blank to complete the sentence.)
h. The warmer the weather, the…..(good) I feel. (Use the correct degree of adjective from the bracket to complete the sentence.)
i. I don't like people shouting at me. (Change into passive.)
j. "Don't disturb the class," said the teacher. (Change into indirect speech.)

5. Choose and copy the correct answer:

a. Which of the following words has final /ei/ sound …..
   i. sells ii. sale iii. seal iv. cell
b. Which of the following words doesn't have prefix?
   i. inactive ii) interesting iii) intransitive iv. incorporate
c. The girl will certainly 'spill the beans' in front of the police. Which of the following has similar meaning to 'spill the beans' in this sentence?
   i. arrive at wrong time ii) reveal the secret
   iii) to make unkind remarks about someone iv. to praise one's own achievement
d. The word 'responsibility' has…. syllables.
   i. three ii. four iii. five iv. six
e. Which of the following words has a different vowel sound?
   i. shoot ii. too iii. Food iv. should

कक्षा - १२

दसैँ र तिहार विदाको गृहकार्य

विषय - नेपाली

प्र.नं. १. तपाईंको जीवनमा प्रभाव पारेको वा पार्न सक्ने विश्व समुदायका कुनै एक व्यक्तिको जीवनी लेखी प्रभाव पर्नुको कारणसमेत लेख्नुहोस् ।

प्र.नं. २. हृदयचन्द्रसिंह प्रधानद्वारा रचित उपन्यास एक चिहान अथवा पुस्तकालयबाट आफूलाई मन पर्ने कुनै एक उपन्यास खोजी अध्ययनपूर्वक उक्त उपन्यासका निम्नलिखित पक्षका बारेमा लेख्नुहोस् ।

क) उपन्यासको विषयवस्तु

ख) पात्र

ग) परिवेश

ख) सन्देश वा भन्न खोजेको कुरा

प्र.नं. ३. स्वलिखित, पुस्तकालय वा सामाजिक सञ्जालमध्ये कुनै एकबाट एउटा मुक्तक/गीत/पद्य कविता/गद्य कविता सङ्कलन गरी संरचना र लयका बारेमा चर्चा गर्नुहोस् ।

प्र.नं. ४. विषयवस्तुका आधारमा तपाईंलाई उपयुक्त लागेका, नेपाली पाठ्यपुस्तकमा दिइएका अथवा पुस्तकालय एवं अन्तर्जालका माध्यमबाट सोधखोज गरी कार्यालयीय चिठी, व्यावसायिक पत्र, भरपाई, तमसुक, सम्झौता पत्र/करारनामा, मञ्जुरीनामा, विज्ञापन, कुनै पदको पूर्ति तथा कुनै सामानको प्रचारप्रसारका बारेमा विज्ञापन, व्यावसायिक विज्ञापन, कुनै साहित्यिक महोत्सवसम्बन्धी सूचना, बोलपत्र, टिप्पणी र आदेश, सम्पादकलाई चिठी आदि प्रत्येकको छुट्टाछुट्टै नमुना आकर्षक ढाँचाका साथै विषयवस्तुको गाम्भीर्य बुझी लेख्नुहोस् ।

Mathematics

GRADE XII Mathematics

Attempts all the questions

1. a. Write the total number of permutations of a set of n objects arranged in a circle.
b. Write the formula for finding permutation of n different objects taken r at a time.
c. In how many ways can the letters of the word "COMPUTER" be arranged so that:
i. All vowels are always together?
ii. The relative positions of the vowels and consonants are not changed?

2. State the principle of mathematical induction. Using it, prove that: $1.3 + 2.4 + 3.5 + \cdots n(n+2) = \frac{1}{6}n(n+1)(2n+7)$

3. State sine law. In any triangle ABC, if $a^4 + b^4 + c^4 = 2c^2(a^2 + b^2)$, prove that $C = 45°$ or $135°$.

4. Using simplex method, maximize $F = 18x + 8y$ subject to $x + 2y \leq 25, 3x + 2y \leq 28, x, y \geq 0$.

5. Find the derivatives of:

a. $x^{\cosh^2(x/a)}$

b. $2Tanh^{-1}(\tan\frac{x}{2})$

6. Write two properties of Karl Pearson's Correlation Coefficient. Calculate the coefficient of Correlation between the price and sales: (2 + 4]

Price	25	21	28	26	20	30
Sales	60	54	66	68	70	50

7. Define L-Hospital Rule: and evaluate $\lim_{x\to 0}\frac{x^2-\sin^2 x}{x^2}$

8. Using how equivalent matrix method: solve the following equations $x - 2y - z = -7, 2x + y + z = 0; 3x - 5y + 8z = 13$.

10. a. In a Δ ABC prove that!

$(b + c)COSA + (c + a)\,CosB + (a + b)\,Cosc = a + b + c$

b. In how many ways can the letters of the word CALCULUS be arranged so that the two L's do not Come together. c. using the principle of mathematical induction prove that', $1^3 + 2^3 + 3^3 + \cdots ... + n^3 = \left\{\frac{n(n+1)}{2}\right\}^2$

11. a Write the integral of integrate $\int \frac{1}{a^2 - x^2}dx$

b. Integrate $\int \frac{x+2}{\sqrt{x^2+x+1}}$

c. Find the derivatives of; $(log)^{sinhx}$

12 a. Is $\sum(x-\bar{x})^2 = 40, \sum(y-\bar{y})^2 = 63$ *and* $\sum(x-\bar{x})(y-\bar{y} = 35$ find the Correlation Coefficient between the two variables.
b. State projection law and Cosine law.
c. What is permutation?
d. Find the optimum solution, maximize $z = 20x + 2y$ s.t. $2x + 2y \geq 20, 5x + y \geq 5, x, y \geq 0$.

13 a. In a binomial expansion $\left(x + \frac{1}{x}\right)^{12}$ Find 7th term
b. Find the term independent of x in expansion of $\left(2x - \frac{1}{2x}\right)^{12}$
c. Show that the middle term in the expansion of $(1 + x)^{2n}$ is $\frac{1.3.5\ldots\ldots\ldots (2n-1)2^n x^n}{n!}$

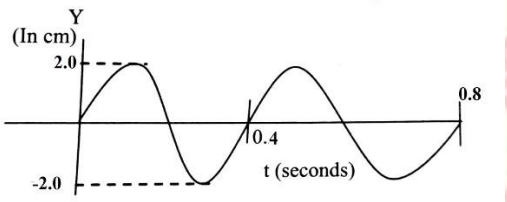
14. a. In a group of 12 students, & are boys and remaining are girls. In how many ways can 5 students be selected for quiz Competition so as to include at most three girls.
b. Expand by the binomial theorem of $(2x - 3y)^4$
c. Find the derivative of $\left(sinh\frac{x}{a} + Cosh\frac{x}{a}\right)^{nx}$

Physics

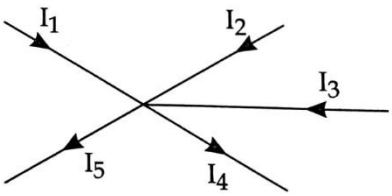
Multiple Choice Questions

Tick the correct answer.

1. The displacement versus time graph of particles in SHM is as shown in figure. The maximum velocity of the particle is,



   a. 31.4 cm/s
   b. 3.14 cm/s
   c. 0.2 cm/s
   d. 1 cm/s
2. A progressive wave is represented as $y = A\sin(\alpha t - \beta x)$. Then, velocity of the wave will be
   a. $\alpha\beta$
   b. $\frac{\alpha}{\beta}$
   c. $\frac{1}{\alpha\beta}$
   d. $\frac{\beta}{\alpha}$
3. What is the relation between currents in the figure given below,

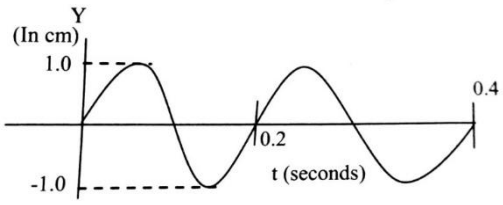


   a. $I_5 = I_1 + I_2 + I_3 - I_4$
   b. $I_5 = I_1 + I_2 + I_3 + I_4$
   c. $I_4 = I_1 - I_2 + I_3 + I_5$
   d. $I_4 = I_5 - I_1 - I_2 - I_3$
4. Neutral temperature of a thermocouple is 320 ℃. The cold junction is at 10 ℃. The temperature of inversion is
   a. 320 ℃
   b. 630 ℃

c. 640 ℃
d. 650 ℃

5. Which condition is essential during the measurement of velocity of oil drop in Millikan's experiment?
   a. Accelerating motion
   b. Decelerating motion
   c. Terminal velocity
   d. All above condition

6. The displacement versus time graph of particles in SHM is as shown in figure. The maximum velocity of the particle is,



   a. 1 cm/s
   b. 0.2 cm/s
   c. 3.14 cm/s
   d. 31.4 cm/s

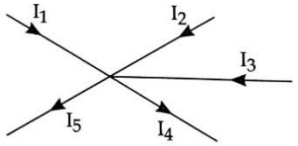
7. Consider the three progressive waves Z_1, Z_2 *and* Z_3 as,

$Z_1 = a\sin(\omega t - kx)$
$Z_2 = a\sin(\omega t - ky)$
$Z_3 = a\sin(\omega t + kx)$

Which of the following represents a standing wave?

   a. $Z_1 + Z_2$
   b. $Z_1 + Z_3$
   c. $Z_1 - Z_3$
   d. $Z_1 - Z_2$

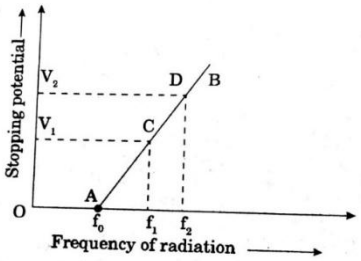
8. What is the relation between currents in the figure given below,

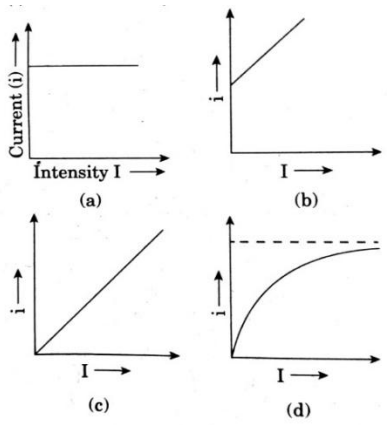


a. $I_4 = I_1 + I_2 + I_3 - I_5$
b. $I_4 = I_1 + I_2 + I_3 + I_5$
c. $I_5 = I_1 - I_2 + I_3 + I_4$
d. $I_5 = I_4 - I_1 - I_2 - I_3$

9. Neutral temperature of a thermocouple is 300 ℃. The cold junction is at 10 ℃. The temperature of inversion is
   a. 590℃
   b. 610℃
   c. 310℃
   d. 290℃

10. Which of the following graphs represents correctly the variation of photoelectric current (i) with intensity (I) of incident radiations:





Answer all questions

11. a. Draw a circuit diagram to measure internal resistance of a cell by using potentiometer.

    a. Discuss the variation of thermo-emf with temperature of hot junction.

12. a. Discuss Einstein Photoelectric equation.
    b. How the value of Planck's constant be determined from graph.

13. a. Define wave motion.
    b. Define stationary wave.
    c. Derive the equation of stationary wave with diagram.
14. State and explain conservation of angular momentum. Give two examples.

15. a. Draw a circuit diagram to compare emf's of two cell's by using potentiometer.
    b. What is Seebeck's effect? Does it follow law of conservation of energy?

16. a. Describe quantum nature of radiation.

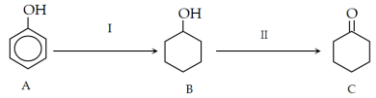
    b. Which law deals with particle nature of light?
    c. Light of frequency 5×10^{14} Hz liberates electrons with energy 2.3×10^{-19} J from a metal surface. What is the wave length of UV- light which liberates electrons of energy 8.93×10^{-19} J from the same metal surface? ($h = 6.6x10^{-34}$Js, $c = 3x10^{8}$ m/s)

    17. a. Derive the expression of Laplace correction of velocity of sound in gaseous medium.
    18. What is radius of gyration?
    A constant torque 150Nm turns a wheel about its center. The moment of inertia about its axis is 75 kgm^2. Find the kinetic energy gained after 20 revolutions.
    19. What is Biot and savarts law?
    20. Find the expression of torque action in a rectangular coil inside the magnetic field.
    22. State and explain Kirchhoffs law in current electricity.
    23. Prove the Wheatstone bridge principle.
    24. Discuss the working of Meter bridge to find resistance and resistivity.
    25. Differentiate between superconductor and perfect conductor.

XII-CHEMISTRY

Short Answer Questions

1. One of the industrial uses of phenol is the preparation of Nylon, a synthetic polymer with high strength and elasticity. The process starts as follows;



   a. Which one of them (A, B or C) will be most acidic? Why?
   b. How can you distinguish?
      i) A and B (ii) B and C
   c. Suggest a suitable reagent and condition for steps I and II.
2. a) Define solubility product with an example.
   b) Apply the solubility product expression to calculate the solubility of CaF_2 in 0.1 N NaF solution. [K_{sp} of $CaF_2 = 3.44 \times 10^{-11}$]

3. Nitrobenzene is a very useful compound used for the preparation of various aromatic compounds possessing nitrogen,
   a. What happens when it is reduced in an acidic medium?
   b. Why is it ortho- and para-directing?
   c. Nitrobenzene almost does not undergo electrophilic substitution reactions like Friedel-Crafts reactions. What might be the reason?
4. A solution containing 20 mL of a 0.25 M benzoic acid [$K_a = 2.6\times10^{-4}$] solution is treated with a 0.17 M solution of NaOH at 25^0C. What is the pH of the solution after adding 8 mL of NaOH?
5. An organic compound (A) having a molecular formula $C_4H_8O_2$ undergoes hydrolysis in an acidic medium to produce a carboxylic acid (B). The compound (A), on reduction with $LiAlH_4$, gives a single alcohol (C). Oxidation of (C) with acidified $KMnO_4$ produces (B) again. Identify A, B, and C, writing the pertinent reactions. How can you convert B into A?
6. An alkyl halide A reacts with KCN to give compound B, which on acidic hydrolysis gives compound C. Compound C reacts with calcium carbonate to give compound D. When compound D is heated strongly, it produces acetone. Identify A, B, C, and D with the necessary reactions.
7. The energy levels of d-orbitals of a transition metal atom are affected by the presence of surrounding ligands in a complex.
   a) Define ligands with examples.
   b) Explain the splitting of d-orbitals of a central metal ion in an octahedral crystal field.
   c) If the metal ion has d^4 configuration, show the arrangement of the electrons in the t_{2g} and e_g orbitals under the following conditions:
      i. $\Delta_o < P$
      ii. $\Delta_o > P$
8. Concentration of solution is expressed in terms of normality and molarity.
   a. Derive the relationship between normality and molarity.
   b. 0.15 g of a metal is dissolved in 10.66 mL of 0.2 N HCl; residual acid requires 4.66 mL of 0.1 N NaOH. Calculate the equivalent weight of the metal.
9. Iron is mostly found in combined states, such as oxides, sulphides, and carbonates.
   a. What is the chief ore of iron?
   b. Write the theory behind the extraction of iron.
   c. Draw the furnace used for smelting during the extraction of iron.
10. Rusting of iron is a rampant problem in household as well as industrial materials .
   a. Define rusting of iron.
   b. Describe the electrochemical theory of rusting of iron.
   c. How is iron prevented from rusting?

Long Answer Questions

1. Write short notes on:
   a. Williamson synthesis
   b. Lucas Test
   c. Reduction of nitrobenzene in basic medium
   d. Reimer-Tiemann Reaction
2. How would you carry out the following conversions?

a. Chlorobenzene into toluene
b. Benzene into phenol
c. Ethane into propanoic acid
d. Benzene into picric acid

3. 30 mL of 0.2 N HCl and 20 mL of 0.5 N NaOH are mixed.
   a. Will the solution be acidic, basic, or neutral? Justify
   b. What will be the pH of the resulting solution?
   c. Compute the normality of the salt formed.
   d. How many gram equivalents of acid or base will be required to neutralize the residual acid/ base?
4. Consider 200 mL of an aqueous solution of a strong acid having pH=3.
   a. Calculate (i) the molar concentration of H^+ ions. (ii) the normality of the acid solution.
   b. Calculate (i) the number of moles of H^+ ions. (ii) Number of gram equivalents of acid
   c. What volume of 0.01 N NaOH solution will be required to neutralise this acid?
   d. If this solution is diluted 10 times, what will be the pH of the resulting solution?

Biology

Botany

Q.1 Photosynthesis is anabolic process justify with reaction. Mention the pigments involved during the process. Elaborate cyclic photo-phosphorylation with its product. [1+2+3+1=8]
Q.2 Which compound accept the CO_2 during dark reaction Explain it with diagrammatic representation. 1+7=8
Q.3 Define respiration & its types. How does glucose is changed into pyruvic acid Mention different steps with diagrammatic Scheme. 1+1+6=8
Q.4 What is decarboxylation. Describe under the heading of Kreb-Cycle. 1+7=8
Q.5 Who was Mendel? Why he selected pea plant for the experiment? Why he becomes a famous geneticist give reason with monohybrid cross. 1+2+2+3=8
Q.6 Describe Law of independent assortment with suitable example by experiment [8]
Q.7 What is transpiration? how does it differ with guttation. 1+3=4
Q.8 To prove that experimentally hypertonic solution always attack hypotonic solution with diagram. (4)
Q.9. What you meant by Hill reaction? explain with diagrammatic presentation & provide the result. 1+6+1 = 8
Q.10. Differentiation between C3 & C4 plant. (4)
Q.11. Draw a label diagram of T.S. of dicot stem & compare it with monocot. stem. (4) (4)
Q.12. What you mean by Conducting tissue. Mention their different elements & function (4)

Zoology

The required materials are easily available at stationery shops.
You will use large-size chart papers, multicolour sign pens, and pencils. Additionally, you can use coloured pencils to make it more attractive and distinctive.
Assignment:
i. Draw a well-labelled structure, its location and its functions in the human body
a). Keratinized and non-keratinized tissue,
b). transitional epithelial tissue,
c). Haversian canal,
d). blood cells,
e). white fibrous tissue and yellow fibrous tissue that forms ligaments and tendons.
ii. Draw the process of embryogenesis in frog starting from the Zygote, cleavage, morula, blastula, gastrula up to the body coelom formation. And write process and changes that takes place in each step.

iii. Draw a well-labelled diagram of the human digestive system with associated glands. Also draw the anatomical structure of the pancreas and liver. Write their structure and functions along with the physiology of digestion.

iv. Write the mechanism of respiration, external and internal respiration and exchange of gases along with its transport mechanism with molecule formation.