CAMBRIAN PUBLIC SCHOOL
Kanke Road, Ranchi

Holiday Assignment (Session 2026-27)

Wishing you all a very Happy Diwali and Chhath Puja!

May these auspicious festivals bring happiness, peace, prosperity, and good health to you and your family

Class: XI

General Instructions:

- Complete all the questions neatly as instructed.
- Maintain proper handwriting and presentation.
- Revise the syllabus covered before attempting the assignment.
- Submit the Completed assignment on the first day after the Vacation.
- Parents are requested to guide and encourage their ward to complete the work independently.

ENGLISH (301) (HW Copy)

SECTION A – READING SKILLS

1. **Read the following passage carefully. On the basis of your reading, prepare notes using headings and sub-headings. Use recognisable abbreviations wherever necessary and supply a suitable title. Also write a summary of the passage in about 80 words. (8 marks)**

Cities are often planned around movement: roads for vehicles, pavements for pedestrians and buildings for work or residence. Yet another element of urban life is receiving increasing attention—the soundscape. A soundscape is not simply the total amount of noise in a place; it is the combination of sounds that people hear and the way those sounds affect their experience of an environment. For decades, city authorities treated unwanted sound mainly as a problem of loudness. Traffic, construction machinery, generators and amplified music were measured in decibels, and regulations attempted to keep noise below fixed limits. This approach remains important because prolonged exposure to high noise levels can disturb sleep, reduce concentration and increase stress. However, researchers now argue that lowering the volume alone does not always create a pleasant environment. Consider two public spaces with similar average sound levels. One may be dominated by horns, engines and sudden mechanical sounds, while the other may contain conversation, footsteps, rustling leaves and birdsong. Although a sound meter may record comparable levels, people may judge the second place as calmer and more welcoming. This has encouraged planners to think not only about removing unpleasant sounds but also about protecting or introducing beneficial ones. Some cities have begun experimenting with quieter road surfaces, traffic-calming measures and barriers that reduce the spread of vehicle noise. Parks can also be designed with vegetation, water features and walking paths that create a more balanced acoustic environment. In busy commercial areas, planners may preserve pockets where people can sit away from constant traffic. Schools and hospitals, in particular, benefit from careful sound planning because excessive noise can interfere with learning, rest and recovery. The idea of soundscape planning does not mean that cities should become silent. A completely silent city would be neither realistic nor desirable. Markets, festivals, conversations and music are part of urban identity. The aim is to distinguish between meaningful sound and intrusive

noise, and to design spaces where the two are better balanced. Soundscape planning therefore represents a broader shift in urban design. Instead of asking only, "How can we reduce noise?", planners are beginning to ask, "What should this place sound like?" That question recognises that hearing, like seeing, shapes how people experience a city.

Note-Making: 5 marks **Summary: 3 marks**

SECTION B – LITERATURE

2. Read the following extract and answer the questions that follow. (6 marks)

"When did my childhood go? Was it the day I ceased to be eleven..."

a) What question is the speaker trying to answer? (1)

b) What does 'ceased to be eleven' suggest about the speaker's search? (1)

c) Which idea is most closely associated with the extract? (1)

A. Physical growth B. Loss of innocence C. Fear of school D. Love of travel

d) Why does the poet repeatedly question the moment when childhood ended? (1)

e) What does the extract suggest about the transition from childhood to adulthood? (1)

f) Identify the tone of the speaker in these lines. (1)

3. Read the following extract and answer the questions that follow. (6 marks)

"You don't know where you are or what you are talking about."

a) What kind of tension is reflected in this statement? (1)

b) What does the statement reveal about the speaker's attitude? (1)

c) Which word best describes the tone? (1)

A. Respectful B. Dismissive C. Grateful D. Cheerful

d) How does such behaviour contribute to conflict within the family? (1)

e) What does the situation reveal about the treatment of the mother in the household? (1)

f) Which value is most clearly lacking in the interaction? (1)

4. Answer the following value-based question in 120–150 words. (5 marks)

Respect within a family cannot be one-sided. In the light of the play, discuss how appreciation, shared responsibility and empathy can prevent a family member from being taken for granted.

SECTION C – CREATIVE WRITING SKILLS

5. You wish to sell your well-maintained study table with a matching chair because you are shifting residence. Draft a suitable classified advertisement in not more than 50 words for publication in a local newspaper. Include relevant details such as condition, approximate size, expected price and contact information. (3)

MATHEMATICS (041) (HW Copy)

Chapters: Permutations and Combinations • Binomial Theorem

Section A: Permutations and Combinations (6 Questions)

1. How many different arrangements can be made using all the letters of the word MATHEMATICS?

2. In how many ways can 7 students be seated in a row if two particular students must sit together?

3. How many 4-digit numbers can be formed from the digits 1, 2, 3, 4, 5, 6 without repetition?

4. From 8 students, in how many ways can a committee of 3 students be selected?

5. A team of 5 is to be selected from 6 boys and 4 girls. In how many ways can the team be formed if it must contain exactly 2 girls?

6. How many distinct arrangements of the letters of the word LEVEL are possible?

Section B: Binomial Theorem (6 Questions)

7. Expand $(x + 2)^5$ using the binomial theorem.
8. Find the coefficient of x^3 in the expansion of $(2x - 1)^5$.
9. Find the general term in the expansion of $(a + 3b)^7$.
10. Find the term independent of x in the expansion of $\left(x^2 + \frac{1}{x}\right)^6$
11. Find the coefficient of x^4 in the expansion of $(1 + 2x)^7$
12. Using the binomial theorem, find the middle term(s) in the expansion of $(x + 1)^8$

PHYSICS (O42) (HW Copy)

Chapter 1: SI Units, Measurements and Kinematics

1. Explain the method of dimensional analysis and state its limitations. The velocity of a transverse wave on a stretched string depends on the tension (T) in the string and the linear mass density (mass per unit length, μ). Derive the formula for the velocity using dimensional analysis.
2. Derive the three kinematic equations of rectilinear motion for a body moving with uniform acceleration, using the graphical method.
3. Define relative velocity of one body with respect to another in one dimension.
   Draw position–time (x–t) graphs for two objects moving with:
   a) equal velocities, b) unequal velocities in the same direction,
   c) velocities in opposite directions.

Chapter 2: Motion in a Plane

4. What is projectile motion? An object is projected with initial speed u at an angle θ with the horizontal ground.
   a) Show that its trajectory is a parabola.
   b) Derive expressions for time of flight (T), maximum vertical height (H), and horizontal range (R).
   c) Prove that the horizontal range is maximum for an angle of projection of 45°.
5. Define uniform circular motion. Derive an expression for the magnitude and direction of centripetal acceleration of a particle moving uniformly along a circular path of radius r with constant speed v.

Chapter 4: Laws of Motion

6. State Newton's second law of motion. Show that Newton's second law is the real basis of the other two laws. (The wording of this part is slightly unclear in the source.) Also, derive the relation F = ma for a system of constant mass.
7. State the principle of conservation of linear momentum. Derive it directly from Newton's third law of motion. Apply this principle to derive the recoil velocity of a gun of mass M firing a bullet of mass m with muzzle velocity v.
8. Define angle of friction and angle of repose (θ). Prove that the angle of friction is equal to the angle of repose. Also, derive the acceleration of a body sliding down a rough inclined plane of inclination θ, when the coefficient of kinetic friction is μ.
9. Why are curved roads banked? Derive an expression for the maximum safe velocity (vmax) of a vehicle on a banked road. Consider a road of radius R banked at an angle θ, with coefficient of friction μ. When is optimum (friction-free) banking achieved?

Chapter 5: Work, Energy and Power

10. State and prove the Work–Energy Theorem for:
a) a constant force acting on a particle;
b) a variable force moving the particle.

11. State the principle of conservation of mechanical energy. Prove that the total mechanical energy of a body of mass m falling freely under gravity from a height remains constant at all points of its motion. Sketch energy-versus-height curves for potential, kinetic and total energy.

12. What is an elastic spring? Derive an expression for the potential energy stored in a spring of spring constant k when it is displaced by a distance x. Show graphically how potential energy, kinetic energy and total energy vary with displacement from equilibrium.

13. A body performs vertical circular motion in a string of length l, moving in a vertical circle. Derive expressions for:
a) the minimum velocity at the lowest point to complete the circle;
b) the tension in the string at the lowest and highest positions; and
c) the speed at the highest point.

Chapter 6: System of Particles and Rotational Motion

14. Define centre of mass. Obtain the expression for the position vector of the centre of mass of an N-particle system. Show that the total linear momentum of a system of particles is equal to the product of the total mass and the velocity of its centre of mass.

15. Define torque (τ) and angular momentum (L). Derive the fundamental relation connecting torque and angular momentum: $\tau = dL/dt$. State the condition under which angular momentum remains conserved.

16. Define moment of inertia (I). State:
a) the theorem of perpendicular axes;
b) the theorem of parallel axes for a planar lamina. Using these theorems, determine the moment of inertia of a uniform thin circular ring of mass M and radius R about: (i) an axis in the plane of the ring,
(ii) a tangent perpendicular to the plane of the ring.

17. What is pure rolling motion? A solid circular body of mass M, radius R and moment of inertia I rolls down an inclined plane without slipping. Derive expressions for its linear acceleration and linear velocity at the bottom of the incline.

CHEMISTRY (043) (HW Copy)

Topic – Equilibrium

1. State the law of chemical equilibrium.

2. Write the characteristic properties of equilibrium constant.

3. Derive the relation between Kp and Kc.

4. State Arrhenius concept of acid and base. Mention examples also.

5. State Lewis concept of acid and base. Explain with examples.

6. What is the ionisation constant of water?

7. Find the pH of: a) 0.00001 M NaOH b) 0.005 M $Ca(OH)_2$.

8. What is the common ion effect? Explain with an example.

9. What is buffer action? How does an acidic buffer solution maintain the pH after addition of strong base NaOH?

10. Write short notes on: a) Solubility product b) Ionic product
c) Brønsted–Lowry concept of acid–base.

11. What is the effect of temperature and pressure on the following equations according to Le Chatelier's principle?
a) $N_2 + O_2 \rightleftharpoons 2NO - (80\ kJ)$
b) $2SO_2 + O_2 \rightleftharpoons 2SO_3 + Heat$

12. Make the conjugate acid and base of the following:
a) H_2O b) HSO_4^- c) NH_3 d) HCO_3^-.

13. 3.0 moles of PCl_5 kept in a 1 L closed reaction vessel were allowed to attain equilibrium at 380 K. Calculate the composition of the mixture at equilibrium. Kc = 1.80.

14. Define polyacid and polybase. Mention one example of each.

15. What is the relation between ΔG and Kc?

BIOLOGY (044) (HW Copy)

Unit: Cell: Structure and Function

Chapters:

1. Cell: The Unit of Life
2. Biomolecules
3. Cell Cycle and Cell Division

Section A: Diagram-Based Questions (5)

1. Draw a neat, well-labelled diagram of a typical prokaryotic cell. Highlight the cell envelope, nucleoid, ribosomes and other cellular structures.

2. Draw a well-labelled diagram of a mitochondrion and explain how its structural organisation is related to its function.

3. Draw a labelled diagram of a fluid mosaic model of the plasma membrane. Identify phospholipids, integral proteins, peripheral proteins and carbohydrate chains.

4. Draw the structures of the following biomolecules:
a) Amino acid
b) Nucleotide
c) Triglyceride
Label their important components.

5. Draw a series of diagrams representing the different stages of meiosis I (Prophase I, Metaphase I, Anaphase I and Telophase I). Clearly show the behaviour of homologous chromosomes.

Section B: Project and Model-Based Questions (2)

6. **Working Model of a Eukaryotic Cell:** Prepare a 3D model of an animal or plant cell using clay, cardboard, thermocol or other eco-friendly materials. Show and label at least 10 cell organelles. Also prepare a chart describing their functions.

7. **3D Model of Cell Division:** Prepare a 3D model or sequential display showing the different stages of mitosis. Use different colours to represent chromosomes, spindle fibres and other cellular structures. Explain the significance of each stage.

Section C: Conceptual and Application-Based Questions (3)

8. Explain why water is considered an essential biomolecule for living organisms. Discuss its role in metabolism, temperature regulation and transportation of substances.
9. A cell contains a large number of mitochondria and an extensive endoplasmic reticulum. Predict the possible metabolic activities of this cell and justify your answer with suitable explanations.
10. During cell division, a chemical substance prevents spindle fibre formation. Explain how this would affect chromosome movement and the successful completion of cell division.

COMPUTER SCIENCE (083)

Write in Practical Copy. Indentation must be done as per syntax

1. **Count Vowels, Consonants, Digits, and Spaces**

```
# Program to count vowels, consonants, digits, and spaces in a string text =
input("Enter a string: ")
vowels = consonants = digits = spaces = 0
for ch in text.lower():   if ch in
"aeiou":     vowels += 1   elif
ch.isalpha():  consonants += 1
elif ch.isdigit():
    digits += 1
elif ch.isspace():
    spaces += 1
print("Vowels:", vowels)
print("Consonants:", consonants) print("Digits:", digits)
print("Spaces:", spaces)
```

2. **Palindrome String Checker**

```
# Program to check if a string is a palindrome
s = input("Enter a word or phrase: ")
cleaned = "".join(s.split()).lower()
if cleaned == cleaned[::-1]:
  print(f"'{s}' is a palindrome!")
else:
  print(f"'{s}' is not a palindrome.")
```

3. **Count Frequency of a Specific Character**

```
# Program to count the occurrences of a specific character in a string
text = input("Enter main string: ")
char = input("Enter character to search: ") count = 0
for c in text:
   if c == char:
     count += 1
print(f"Character '{char}' appears {count} times.")
```

4. Reverse Words in a Sentence

```
# Program to reverse the order of words in a sentence

sentence = input("Enter a sentence: ")
words = sentence.split()
reversed_sentence = " ".join(words[::-1])
print("Reversed words:", reversed_sentence)
```

ACCOUNTANCY (055) (HW Copy)

1. On 30th June, 2014, the bank column of Mohan Kapoor's Cash Book showed a debit balance of ₹ 12,000. On checking the Cash Book with bank statement, you find that: -

a) Cheques paid into Bank ₹ 8,000, but out of these only cheques of ₹ 6,500 were cleared and credited by the Bankers upto 30th June.

b) Cheques of ₹ 9,200 were issued but out of these only cheques of ₹ 7,000 were presented for payment upto 30th June.

c) The receipt column of the Cash Book has been undercast by ₹ 200.

d) The Pass Book shows a credit of ₹ 330 as interest on investments collected by bankers and debit of ₹ 60 for bank charges.

e) On 29th June a Customer deposited ₹ 3,000 direct in the bank account but it was entered only in the Pass Book.

Prepare a Bank Reconciliation Statement.

2. On 30th June 2014, the bank balance as per Sanjay Yadav's Cash Book was ₹ 1,500. On comparing with the Pass Book the following information was received: -

a) Cheques amounting to ₹ 7,290 were issued on 28th June, of which one cheque of ₹ 1,300 was presented in the bank for payment on 4th July.

b) Cheques deposited into bank for ₹ 10,000, but of these cheques for ₹ 4,000 were cleared and credited in July.

c) Interest and Dividend on investments ₹ 580 collected by bank and credited to his account but he did not have any information for this.

d) Life Insurance Premium ₹ 750 paid by bank according to his standing orders.

e) Bank Charges ₹ 25 not recorded in the Cash Book.

Prepare a Bank Reconciliation Statement.

3. State the need for the preparation of bank reconciliation statement?

4. What is a bank overdraft?

5. Briefly explain the statement wrongly debited by the bank' with the help of an example.

6. Explain the reasons where the balance shown by the bank passbook does not agree with the balance as shown by the bank column of the cash book.

7. In cash book, the favourable balance indicates

a) Credit Balance b) Debit Balance c) Bank Overdraft d) Adjusted Balance

8. What type of cheques is that which is issued by a firm but not yet presented to the bank

a) Uncredited cheques b) Outstanding cheques c) Uncollected cheques d) Bounced cheques

9. Bank reconciliation is not a?

a) Reconcile records b) Memorandum statement

c) Ledger account d) Procedure to provide cash book adjustments

10. Bank statement also called?

a) Pass book b) Cash book c) Credit book d) Debit book

HISTORY (027) (HW Copy)

Chapter 7: Changing Cultural Traditions

1. In Arabic, the person who was known as 'Aflatun' was

a) Plato b) Aristotle c) Dante d) Caesar

2. Petrarch was given the title of 'Poet Laureate' in Rome in

a) 1341 b) 1342 c) 1343 d) 1344

3. The painting 'Mona Lisa' was made by

a) Leonardo da Vinci b) Michelangelo c) Raphael d) Donatello

4. The author of the book 'The Prince' is

a) Lorenzo Valla b) Gutenberg c) Machiavelli d) Alberti

5. The earliest universities in the European continent were setup in the country of

a) France b) Germany c) Italy d) England

6. The families that gave more importance to women during the 15th century were those of

a) aristocrats b) artists c) merchants d) scholars

7. Renaissance is best known for its

a) cultural developments b) social developments

c) political developments d) economic developments

8. Anatomy, geometry, physics, as well as a strong sense of what was beautiful, gave a new quality to Italian art, which was to be called

a) aesthetic realism b) epistemological realism

c) philosophical realism d) realism

9. Gregorian calendar was introduced by Pope

a) Evaristus b) Gregory XIII c) Peter St d) Pius I

10. The opening of trade between Europe and China started in the

a) 9^{th} century b) 10^{th} century c) 11^{th} century d) 12^{th} century

11. By the early fifteenth century, _____ was used for those masters who taught grammar, poetry, rhetoric, history and moral philosophy

a) literates b) humanists c) authors d) writers

12. When did Renaissance occur in Europe?

a) 11^{th} century b) 13^{th} century c) 15^{th} century d) 16^{th} century

13. Ptolemy's Almagest was a work on _____.

a) Mathematics b) Astronomy c) Philosophy d) Sociology

14. Ibn Rushd was an Arab philosopher of _____.

a) France b) Germany c) Britain d) Spain

15. Andreas Vesalius was a professor of _____ at the University of Padua.

a) Medicine b) Astronomy c) Philosophy d) Mathematics

16. Cassandra Fedele was

a) Women humanist b) Orator c) Curator d) Professor

17. Erasmus, a Christian humanist was from

a) Africa b) Asia c) Holland d) England

18. Protestant Reformation was

a) A document opposing church practises

b) A movement against Catholic Church by Martin Luther, a monk

c) A mutiny

d) Peasants' movement opposing over-taxation

19. Copernicus was afraid of printing his manuscript because

a) It was not good to mankind

b) It was a disclosure of Church's fallacy

c) It would jeopardise his image in society

d) He wanted to avoid its bitter repercussions in his individual life-time

20. William Tyndale while presenting English version of Bible says

a) It will create public awareness to religion

b) Network of Christianity would increase

c) It will imprint virtues in the hearts of masses

d) It will disclose how trickily; the church and its clergy men have made Bible all for their advantage

21. Humanism originated from

a) Italy b) France c) England d) Germany

22. The term 'Renaissance Man' meant

a) Person with many interests and skills b) Religious man

c) King d) Pope

23. Donatello was famous for

a) Painting b) Sculpture c) Architecture d) Music

24. Who invented the printing press?

a) Gutenberg b) Machiavelli c) Petrarch d) Erasmus

25. The Protestant Reformation started in 1517 when Luther nailed 95 Theses at

a) Wittenberg Church b) Rome (c) Paris (d) Florence

26. The Society of Jesus was set up by Ignatius Loyola in

(a) 1540 (b) 1517 (c) 1492 (d) 1520

27. The doctrine of Indulgences meant

(a) Letters sold by clergy to free buyer from sins (b) Prayer method (c) Church tax (d) Baptism

28. De Revolutionibus was the work of

(a) Copernicus (b) Galileo (c) Kepler (d) Newton

POLITICAL SCIENCE (028) (HW Copy)

Topics: Judiciary & Citizenship

Short Answer Type Questions

1. What is the original jurisdiction of the Supreme Court of India?

2. Define the concept of 'Judicial Review' and its significance in a democracy.

3. What is Public Interest Litigation (PIL), and how does it help marginalized sections of society?

4. Mention any two conditions required for acquiring citizenship in India as per the Citizenship Act.

5. What do you understand by the concept of 'Global Citizenship'?

6. Distinguish between a 'Citizen' and an 'Alien'.

Map-Based Question

1. **Study the map of India and answer the following questions related to the High Courts and Jurisdiction:**
   a) Identify the state/UT where the jurisdiction of the **Guwahati High Court** originally extended across multiple Northeastern states.
   b) Name the state that shares its High Court with the Union Territory of Chandigarh and another neighboring state.
   c) Identify the Union Territory that has its own independent High Court.

Cartoon-Based Questions

1. **Chapter: Judiciary** *(Refer to the following questions in the images of the chapter)*
   a) What issue does the cartoon highlight regarding the relationship between the Judiciary and the Executive/Legislature?
   b) Does Judicial Activism strengthen or weaken the democratic structure? Give one reason to support your answer.

Chapter: citizenship

   a) What core problem faced by refugees or migrants is depicted in the cartoon?
   b) How does full political membership in a nation-state safeguard an individual's basic rights?

Long Answer Type Questions

(Answer the following questions in 150–170 words. Carries 6 marks each)

1. Explain the constitutional provisions that ensure the independence of the Judiciary in India.
2. Critically analyze the ways in which citizenship can be acquired and lost in India.
3. "Judicial Activism has led to a friction between the Executive and the Judiciary." Explain this statement with relevant arguments and examples.

BUSINESS STUDIES (054)

Project:

Aid to Trade. -INSURANCE

1. Introduction: Life is open to many types of Risk and uncertainties Risk to Life Risk to property etc. Explain
2. History of Insurance LLOYD's Contribution and case
3. Meaning of Insurance
4. Function
5. Terminologies used like
   Insured, insurer,insurance policy,premium, maturity date Face value, Surrender Value, Lapsed policy
   Insurance Regulatory and Development Authority
6. List of life Insurance Companies in India
7. principles of insurance
8. list of General Insurance companies
9. Types of Life Insurance
10. Health Insurance policy
11. reason of origin,Nature of protection

ECONOMICS (030) (HW Copy)

1. Calculate the value of Mean, Median and Mode from the following data:
   Marks (less than): - 5, 10, 15, 20, 25, 30, 35, 40, 45
   No. Of students: 29, 224, 465, 582, 634, 644, 650, 653, 655

2. In a class of 50 students 10 have failed and their average marks is 3.5. The total marks received by the entire class were 381. Find the average marks of those who have passed.
3. The mean height of 25 male workers in a factory is 61 inches and the mean height of 35 female workers in the same factory is 58 inches. Find the combined mean height of all workers in the factory.
4. A company plans to expand it's operations in the coming year. It is situated near town where there is availability of labour at reasonable rates. Also, the effective machinery for production can be obtained easily The company is caught between the choice of technique of production. What you suggest?

Explain the Law of Diminishing Marginal Productivity with the help of TP and MP schedule and curve. Explain the causes of this behaviour.

APPLIED MATHEMATICS (241) (HW Copy)

Differentiation

1. **Find $\frac{dy}{dx}$ for the following functions:**

i) $x^2 + y^2 + xy = 100$ **ii)** $x^{2/3} + y^{2/3} = a^{2/3}$

iii) $x^3 + x^2y + xy^2 + y^3 = 81$ **iv)** $(x^2 + y^2)^2 = xy$

v) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 2020$ **vi)** $\log\left(x + \sqrt{x^2 + a^2}\right)$

2. If $f(x) = \frac{3x + 4}{5x^2 - 7x + 9}$ Find $f'(x)$and $f'(3)$

3. If $y = \left(x + \sqrt{x^2 + a^2}\right)^n$ Prove that $\frac{dy}{dx} = \frac{ny}{\sqrt{x^2 + a^2}}$

4. If $y\sqrt{x^2 + 1} = \log\left(\sqrt{x^2 + 1} - x\right)$ Prove that $(x^2 + 1)\frac{dy}{dx} + xy + 1 = 0$

5. If $y = \frac{e^x + e^{-x}}{e^x - e^{-x}}$ Prove that $\frac{dy}{dx} = 1 - y^2$

6. **If** $y = x\sqrt{1 + x^2} + \log\left(x + \sqrt{x^2 + 1}\right)$ Find $\frac{dy}{dx}$.

7. If $y = \frac{\log\left(x + \sqrt{x^2+1}\right)}{\sqrt{x^2 + 1}}$ Prove that $(x^2 + 1)\frac{dy}{dx} + xy = 1$

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