

Class : XI

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**SUBJECT: ENGLISH**

**1. Read the following extracts carefully and answer the questions that follow:**

- A. "And who art thou? said I to the soft-falling shower.  
Which, strange to tell, gave me an answer, as here translated:  
I am the Poem of Earth, said the voice of the rain,"
- Name the poem and the poet.
  - What does the phrase 'strange to tell' mean?
  - Why does the rain call herself 'the Poem of the Earth'?
- B. Taplow: (imitating a very gentle, rather throaty voice) "My dear Taplow, I have given you exactly what you deserve. No less; and certainly no more." Do you know sir, I think he may have marked me down, rather than up, for taking extra work, I mean, the man's hardly human. (He breaks off quickly.)  
Sorry, sir. Have I gone too far?
- Who is Taplow imitating in the given lines?
  - Why does Taplow say that 'the man's hardly human'?
  - What quality of the teacher is displayed through the line 'I have given you exactly what you deserve'?
2. Why did Taplow have to stay back at school on the last day of the term?
3. Justify the title 'The Voice of the Rain' within 50 words.
4. If the teacher is strict and does not allow his pupils' freedom, he becomes an object of their criticism. But later on, he is revered and remembered. Discuss with reference to 'The Bowling Version'.
5. Write a letter to the Chairman of the National Library requesting him to open a furnished library in your locality. Write the letter within 120 words giving reasons for the need of a library.

**SUBJECT: MATHEMATICS (STANDARD)**

Q1: Prove that :  $\cos 2x \cdot \cos(x/2) - \cos 3x \cdot \cos(9x/2) = \sin 5x \cdot \sin(5x/2)$ .

Q2: Prove that :  $\cos 6x = 32 \cos^6 x - 48 \cos^4 x + 18 \cos^2 x - 1$

Q3: Find the degree measure of the angle subtended at the centre of a circle of radius 100 cm by arc of length 22 cm.  $\left( \text{use } \pi = \frac{22}{7} \right)$

Q4: Prove that :  $\cos\left(\frac{3\pi}{4} + x\right) - \cos\left(\frac{3\pi}{4} - x\right) = -\sqrt{2} \sin x$

Q5: Solve the following system of inequalities graphically  
 $x + 2y \leq 10, x + y \geq 1, x - y \leq 0, x \geq 0$  &  $y \geq 0$

Q6: How many litres of water will have to be added to 1125 litres of the 45% solution of acid so that the resulting mixture will contain more than 25% but less than 30% acid content.

Q7: Solve the given system of inequalities graphically.

$$3x + 2y \leq 150, \quad x + 4y \leq 80, \quad x \leq 15, \quad x \geq 0, \quad y \geq 0$$

Q8: Find the coordinates of the point which divides the line segment joining the points  $(-2, 3, 5)$  and  $(1, -4, 6)$  in the ratio:

- i) 2:3 internally                      ii) 2:3 externally

Q9: The centroid of a triangle ABC is at the point  $(0, 0, 0)$ . If the coordinates of the points A, B and C are  $(2a, 2, 6)$ ,  $(-4, 3b, -10)$ , and  $(8, 14, 2c)$  respectively, then find the value of  $a, b$  and  $c$ .

Q10: Find the equation of the set of points P, the sum of whose distances from the points  $A(4, 0, 0)$  and  $B(-4, 0, 0)$  is equal to 10 units.

**SUBJECT: MATHEMATICS (APPLIED)**

Q1: Calculate the mean deviation about the median for the following data

Class Interval	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	8	10	10	16	4	2

Q2: For a certain frequency distribution.  $Q_1 = 59, Q_2 = 58$  and  $Q_3 = 61$ , then find the Bowley's coefficient of skewness.

Q3: Find the Mean, Variance and Standard deviation for the following data

Class Interval	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Frequency	3	4	7	7	15	9	6	6	3

Q4: Find the first two central moments of the following set of observations : 4, 6, 7, 10, 13

Q5: Calculate the coefficient of correlation for the following data.

X	12	13	14	15	16	17	18
Y	14	17	18	19	20	24	28

Q6: The test scores of 10 students are given below 48, 37, 35, 46, 39, 55, 89, 67, 55 & 46. Find the percentile rank of score 55.

Q7: If  $P(4, r) : P(5, r-1) = 6 : 5$ , then find the value of 'r'

Q8: Find the value of 'n' if  ${}^{2n}C_3 : {}^nC_3 = 11 : 1$

Q9: Find the number of arrangements of the letters of the word PERMUTATIONS, such that

- i. the words begin with P and end with S.
- ii. all the vowels always occur together.
- iii. there are always four letters between P and S.

Q10: Find the number of arrangements of the letters of the word INDEPENDENCE. In how many of these arrangements,

- i. do the words starts with P
- ii. do all the vowels always occur together
- iii. do the words begin with I and end in P

## SUBJECT: SCIENCE

### Physics

1. Define the following
  - a. Young's modulus of elasticity
  - b. Bulk modulus of elasticity
  - c. Modulus of rigidity
2. Define coefficient of viscosity. State its unit in CGS system and in SI. Also find its dimensions.
3. State and prove equation of continuity in case of a flow of liquids in a pipe.
4. State and prove Bernoulli's theorem of a liquid having streamline flow. Give one practical application.
5. What is surface energy? Find the relation between surface tension and surface energy.
6. State Stokes law. Derive an expression for terminal velocity attained by a spherical body falling through a viscous medium.
7. Define isothermal process. Derive an expression for work done during isothermal process.
8. What is thermodynamic system? Prove that the work done by a thermodynamic system is equal to the area under PV diagram.
9. Explain the anomalous behaviour of water. What role is played by this behaviour of water for the survival of aquatic life?
10. Define
  - a. Isothermal process
  - b. Adiabatic process
  - c. Isochoric process
  - d. Isobaric process
  - e. Reversible process
  - f. Irreversible process

### Chemistry

1. Why are alkali metals not found in nature?
2.  $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{CH}_2\text{Cl} + \text{KOH}(\text{aq}) \longrightarrow \text{CH}_3-\text{CH}_2-\text{CH}_2-\text{CH}_2\text{OH}$   
What is the type of above reaction?
3. Tl shows an oxidation no of +1. Why?
4. Boron is unable to form  $\text{BF}_6^{3-}$  ion. Explain.
5. State Dalton's Law of partial pressure.
6. What will be the pressure exerted by a mixture when 0.5 l of  $\text{H}_2$  at 0.1 atm and 2.0 l of  $\text{O}_2$  at 0.7 atm are introduced in a 1 l vessels at  $27^\circ \text{C}$ ?
7.
  - a) Give units of Van der Waal's constant.
  - b) Why do real gases deviate from ideal behavior? Write Van der Waal's equation of state for n mole of real gas.

8. Explain why?
  - a) Lithium shows similarities to magnesium.
  - b) Beryllium and magnesium do not give color to flame.
9. Explain why ?
  - a) Boron trifluoride behave as a Lewis acid.
  - b)  $\text{BCl}_3$  have zero dipole moment.
10. How will you convert?
  - a) 1,2 – Dibromoethane to Ethene .
  - b) But – 1 – ene to 2 – Bromobutane.
  - c) An alkane 'A' on ozonolysis gives a mixture of ethanal and pentan – 2 – one. Write the structure of A.
  - d) Why Wurtz reaction is not suitable to prepare all types of Alkanes?

### **Biology**

1. Where does Calvin cycle take place? Describe its three phases.(Draw the cycle also)
2. Draw the diagram of a sarcomere of skeletal muscle showing different regions.
3. Draw the diagram of Human Brain.
4. Describe briefly the various stages of cell cycle during the interphase preceding mitosis.
5. Explain cyclic photophosphorylation along with its pathway.
6. Diagrammatically indicate the location of the various endocrine glands in our body.
7. Describe the structures of the following with the help of labelled diagram.
  - (a) Nucleus
  - (b) Centrosome
8. Give the structural formula of
  - (a) adenine
  - (b) adenosine and
  - (c) adenylic acid.
9. Bring out the role of calcium ions and ATP in muscle contraction.
10. Draw the basic structure of a neural synapse and label the following parts in it:  
Pre-synaptic membrane, post-synaptic membrane, synaptic vesicles, neurotransmitter, receptor, synaptic cleft.

### **SUBJECT: ACCOUNTANCY**

1. On 1st January 2017, Hari drew on Gopal, who is his debtor for Rs.60,000 three bills of exchange : First for Rs.15,000 at one month, Second for Rs.20,000 at two months and third for Rs.25,000 at three months.  
Gopal accepted all the three bills.  
On 5th January 2017, Hari endorsed the first bill to his creditor Satish in full settlement of his account of Rs.15,200. This bill was duly met on maturity.  
On 1st February 2017, the second bill was discounted from the bank @ 12% p.a. This bill was dishonoured on the due date and bank paid Rs.120 as noting charges. On Gopal's request, Hari drew fourth bill on Gopal for 2 months for the amount due plus interest @ 15% p.a.

Third bill was paid under a rebate of 12% p.a. one month before maturity. The fourth bill was sent to bank for collection on 4th May 2017 and was duly met on maturity.

Pass Journal entries in the books of Hari, Gopal and Satish.

2. The book-keeper of a firm found that his trial balance was out (excess credit) by Rs.742. He placed the amount in a Suspense Account and subsequently found the following errors :
  - i. A discount of Rs.178 was allowed to Ramesh but in his account only Rs.100 is recorded.
  - ii. The total of the Purchases Book was Rs.1,000 short.
  - iii. A sale of Rs.375 to Kohil was entered in the Sales Book as Rs.735.
  - iv. From the Purchases Book, Bose's Account was debited with Rs.175.
  - v. Cash Rs.250 received from Maitra against debt previously written off was credited to his account.
  - vi. Purchase of office furniture worth Rs.750 on credit from Delhi Furniture was entered in the Purchases Book.
  - vii. While carrying forward the total of the Sales Book from one page to another the amount of Rs.11,358, was written as Rs.11,538.
  - viii. The proprietor took goods of the value of Rs.150 for his domestic consumption, No record of it has been made in the books.
  - ix. Repairs bill for the proprietor's personal car, Rs.410, has been paid by the firm and debited to the Repairs Account.
  - x. A sale to Kasim of Rs.700 has been entered in the Purchases Book.Rectify the errors by means of suitable Journal Entries and show the Suspense Account.
3. Pass necessary Journal entries to rectify the following errors:
  - i. A credit sale of Rs.1,700 to Krishan was posted to Kishan's Account.
  - ii. A cash sale of Rs.1,700 to Meena was posted to the credit of Meena.
  - iii. A credit sale of old furniture to Prem for Rs.1,700 was credited to the Sales Account.
  - iv. A credit sale of old furniture to Rohan for Rs.1,700 was posted as Rs.7,100.
  - v. A cheque for Rs.640 received from Guru was dishonoured and was posted to the debit of Sales Return Account.
  - vi. An amount of Rs.2,860 due from Prasad, written off as bad in previous year, was recovered and credited to his personal account.
  - vii. A discounted bill of exchange receivable for Rs.8,000 returned by the firm's bank had been credited to the Bank Account and debited to Bills Receivable Account.
  - viii. Rs.10,000 paid for the electricity bill of the proprietor's residence was debited to Electricity Expenses Account.
  - ix. An amount of Rs.7,500 withdrawn from bank by the proprietor for his personal use was debited to Purchases Account.
  - x. An amount of Rs.15,000 withdrawn from bank by the proprietor for office use was debited to Drawings Account.
  - xi. Rs.8,000 salary paid to Varun, an employee, debited to his personal account.

4. X made the following sales to Y:

Date	Amount (Rs.)
Jan. 01, 2017	20,000
Jan. 08, 2017	25,000
Jan. 10, 2017	10,000
Jan. 15, 2017	40,000

For all the sales X drew bills on Y payable after 60 days. Bill drawn on Jan. 01, 2017 was retained by X with him till its due date. The bill drawn on Jan. 08, 2017 was discounted by X from the bank at 9% p.a. The bill drawn on Jan. 10, 2017 was endorsed by X to his creditor Z in full settlement of Rs.10,400.

On March 12, 2017, X sent the bill drawn on Jan. 15, 2017 to his bank for collection. All the bills were met by Y on due dates.

Pass necessary journal entries in the books of X and Y and prepare Y's account in the books of X and X's account in the books of Y.

5. Your father has appointed a person to maintain accounts of his business but who is not very competent. Often he commits accounting errors. Your father has asked you to look into the accounts and make a list of various errors he commits. Find out which type of errors he can commit. Classify these errors and explain to him how not to make such errors in future.

**SUBJECT: BUSINESS STUDIES**

1. Define the term 'Finance'.
2. Differentiate between Equity Shares and Preference Shares.
3. 'It is better to use our own funds because that costs us nothing.' Do you agree?
4. What measures the government has taken to solve the problems of finance and marketing in the small sector?
5. Differentiate between Wholesalers and Retailers.

**SUBJECT: ECONOMICS**

1. Find out quartile deviation and coefficient of quartile deviation of the following data :

Age (years)	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100
No. of People	4	10	15	20	11

2. (i) Define Mean deviation.  
(ii) Calculate Mean deviation in the following data using Median:

X	5	6	7	8	9	10	11	12	13
f	4	5	6	7	8	9	10	11	12

3. Define price elasticity of supply. Draw a supply curve for each of the following situations of elasticity:
  - I. Elasticity of supply >1
  - II. Elasticity of supply < 1
  - III. Elasticity of supply = 1

4. Distinguish between extension of supply and increase in supply with the help of diagrams.
5. What is meant by supply? Which factors do influence supply?

**SUBJECT: ENTREPRENEURSHIP**

1. What do you understand by Break Even Point? Explain with a suitable example.
2. What are Taxes? Explain various types of Taxes.
3. Differentiate between Cost, Expense and Expenditure.
4. Write down various types of Pricing Strategies?
5. Write and explain Ans Off Matrix.

**SUBJECT: COMPUTER SCIENCE**

- Q1. Write a program to swap any two numbers. Ie if a=10 and b=20 then after swapping value will be a=20 and b=10
- Q2. Draw truth table of 3 input XNOR gate and its circuit diagram
- Q3. What is significance of UNICODE encoding system?
- Q4. Fill in the blanks:
  - (i) Each hexadecimal digit has its own value or weight expressed as a power of -----
  - (ii) If X, Y are two logical variable then what is the right hand side value of the below expression  $X+(Y+Z)=$  -----
- Q5. Why NAND and NOR Gates are more popular?
- Q6. Design a logic circuit to realize the Boolean function  $Y=A'B'C'D+AB'C'D+ABC'D+ABCD'$
- Q7. Proof Demorgan's two theorems algebraically.
- Q8. Write the output of the following:
  - a. `math.sqrt(4)`
  - b. `math.sqrt(4)`
  - c. `math.ceil(4.5867)`
  - d. `math.floor(4.5687)`
  - e. `math.fabs(-5.5)`
  - f. `math.sin(270)`
  - g. `math.fabs()`
  - h. `import random`  
`print (random.randint(0, 5))`

**SUBJECT: INFORMATICS PRACTICES**

- Q1. Define Data Redundancy.
- Q2. What is MySQL? What are its functions and features?
- Q3. Which keyword eliminates the redundant data from a query result?
- Q4. How would you display system date as the result of a query?
- Q5. Which operator concatenates two strings in a query result.
- Q6. Compare char and varchar data types of SQL
- Q7. Write a query to create a string from the ASCII values 70,65,67,69
- Q8. Differentiate between DDL and DML commands.
- Q9. What do you mean by views?
- Q10. What do you understand by MySQL Client?
- Q11. Define Data Dictionary

Q12. Table Name: **Empl**

Eno	Ename	Job	Mgr	Hiredate	Sal	Comm	deptno
8369	SMITH	CLERK	8902	1990-12-18	800	NULL	20
8499	ANYA	SALESMAN	8698	1991-02-20	1600	300	30
8521	SETH	SALESMAN	8698	1991-02-18	1250	500	30
8566	MAHADAVAN	MANAGER	8839	1991-04-02	2985	1400	30
8654	MOMIN	SALESMAN	8698	1991-09-28	1250	100	20

Write the following query based on the above table.

- Display all the columns of the table
- Arrange all the information according to the Date of Hired in ascending order
- Display all the details of all employee whose salary is more than 1000
- Display the details of employee whose comm is empty.

**SUBJECT: PHYSICAL EDUCATION**

- In which year, special Olympics India was founded?
- Describe some organisation promoting adaptive sports?
- Who said, "Checking the impulses of mind is Yoga"?
- What do you mean by asana? Discuss its various types.
- Which are the sports in which there is a high degree of risk to the participant?
- Write notes on the following :
  - Mountaineering
  - Surfing
- What do you mean by growth and development?
- Whose statement is this, "First psychology lost its soul. Then it lost its mind. Then it lost its consciousness it still has behaviour of a sort."?
- In which activity body temperature becomes normal?
- What is blood doping?

**SUBJECT: HINDUSTANI VOCAL MUSIC**

- Rag Bhimpalasi belongs to which that?
- Tansen was among the navaratnas at the court of the which Mughal emperor?
- Who was the Guru of Miyan Tansen?
- Which notes are omitted in the aaroh of Rag Bhimpalasi?
- Slapping the hands together or against one arm is known as----
- How many matras are there in Chartal?
- What is the vadi- samvadi swar of Rag Bhimpalasi?
- Who invented Tarana?
- Write the taal notation of Chartal with dugun.
- Write the notation of Rag Jaunpuri.

**SUBJECT: PAINTING**

- Make one fine- art portfolio, with 6 pencil shading work.
- Make one Indian manuscript painting in pipal or banana leaf.

**Note:**

**Submit your project in kalamandapam (art room)  
Decorate your file with your own handmade work.**

