

St. Mary's School, Dwarka
Holiday Homework
Class XII
Week 2
Worksheet 2

Subject: English

M.M-25

Q1. Read the following passage carefully.

1. A British survey found that 44% of the firms, which started to use robots, met with initial failure and 22% abandoned them altogether, mainly because of inadequate technological know-how and skills at all plant levels.
2. Robotization is, by and large, a viable proposition. The machines can work round the clock, raise output, protect quality and industrial competitiveness.
3. One robot can replace between two and five production workers, while providing cheaper labour. In the US car industry, a man-hour costs around 23 dollars but a robot-hour costs around 6 dollars.
4. Certain jobs, mostly simple of hazardous ones, are irretrievable lost to robotics. Thus, spot welders, press operators, spray painters, cleaners, machine loaders, grinding and polishing machine operators are endangered species.

Based on the understanding of the passage, answer the questions given below: (1X5=5)

- a) What does the writer say about the inceptive failure of robots?
- b) In what sense is the word 'robotization' used in the second paragraph?
- c) What are robots a substitute for?
- d) What does the expression 'viable proposition' mean?
- e) In its context the expression 'endangered species' means _____.

Q2. Prepare a poster for an Inter-School Poetry Recitation Contest that the Hindi Sahitya Sabha of D.A.V. Sr. Sec. School, Ambala is organizing to celebrate the birthday of Munshi Prem Chand. You are the secretary of the Hindi Sahitya Sabha. (Word limit- 50 words) (3)

Q3. You, Avinash Aneja, the Librarian, Vivekananda Senior Secondary School, Vikas Puri, Delhi had ordered two sets each of World History in Pictures (5 Volumes), Nature Study (16 Volumes), and The Story of Science (16 Volumes) from M/s Universal Book Suppliers, 14, Ram Nath, Chandni Chowk, Delhi. Unfortunately, on the receiving the books, you found that some volumes were missing in the sets and some were damaged. Write a letter complaining about the defective, deficient supply and ask them to rectify the situation in not more than 150-200 words. (5)

Q4. Read the extracts given below and answer the questions that follow:

(1X6=6)

I. ‘His face, I see, has lost the carefree look. The steel canister seems heavier than the plastic bag he would carry so lightly over his shoulders. The bag was his. The canister belongs to the man who owns the tea shop. Saheb is no longer his own master!’

- a) **Why had his face lost the carefree look?**
- b) **Why was the steel canister heavier than his bag?**
- c) **What has been the effect of the changed situation on Saheb?**

II. ‘...of a corpse and realized with pain
that she was as old as she looked but soon
put that thought away, and looked out at Young
Trees sprinting, the merry children spilling
out of their homes...’

- a) **What did the poet realize with pain?**
- b) **What did she do after the painful realization dawned upon her?**
- c) **Which poetic device is used in ‘trees sprinting’?**

Q5. Answer the following questions briefly in 30-40 words.

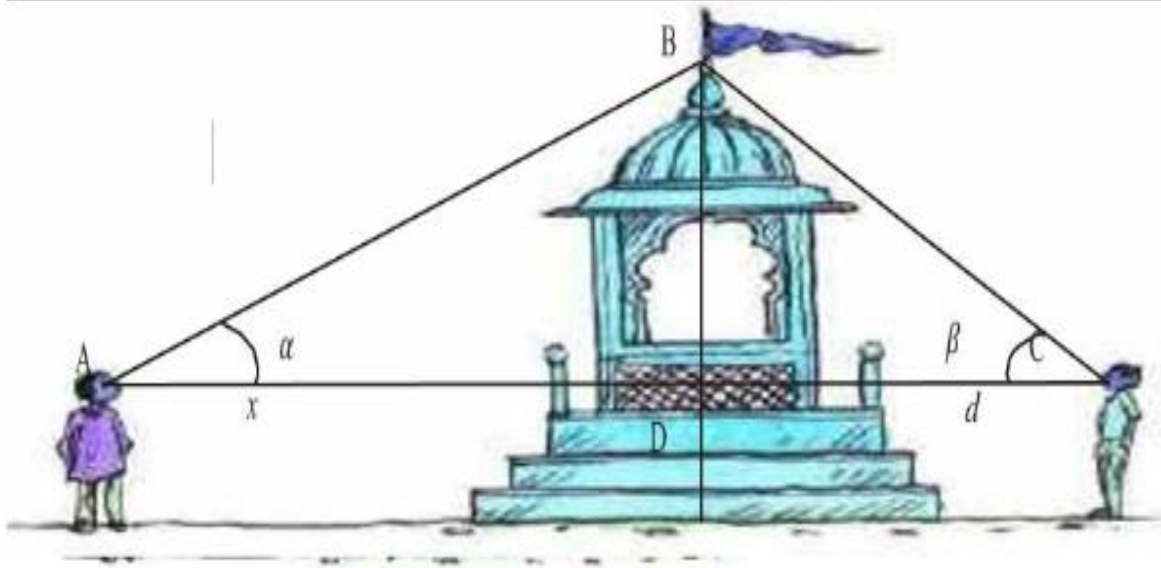
(2X3=6)

- a) The announcement of the change in government left M. Hamel heartbroken. How did Franz realize this?
- b) The poem (My Mother at Sixty-Six) has come to a full cycle through the thought process of the poet. Comment.
- c) Bring out the irony in Saheb’s name.

Subject – Mathematics**(INVERSE TRIGONOMETRIC FUNCTIONS)**

Q1	If $y = \cot^{-1}(\sqrt{\cos x}) - \tan^{-1}(\sqrt{\cos x})$, prove that $\sin y = \tan^2 \frac{x}{2}$.
Q2	If $\cos^{-1} \frac{x}{a} + \cos^{-1} \frac{y}{b} = \alpha$, prove that $\frac{x^2}{a^2} - \frac{2xy}{ab} \cos \alpha + \frac{y^2}{b^2} = \sin^2 \alpha$
Q3	Prove that : $\tan^{-1} \frac{1-x}{1+x} - \tan^{-1} \frac{1-y}{1+y} = \sin^{-1} \frac{y-x}{\sqrt{1+x^2} \sqrt{1+y^2}}$
Q4	Prove that $\tan \left\{ \frac{\pi}{4} + \frac{1}{2} \cos^{-1} \frac{a}{b} \right\} + \tan \left\{ \frac{\pi}{4} - \frac{1}{2} \cos^{-1} \frac{a}{b} \right\} = \frac{2b}{a}$
Q5	Solve the following equations : (i) $\tan^{-1} \frac{x-1}{x-2} + \tan^{-1} \frac{x+1}{x+2} = \frac{\pi}{4}$ (ii) $\tan^{-1} 2x + \tan^{-1} 3x = \frac{\pi}{4}$ (iii) $\tan^{-1} \frac{x-1}{x+1} + \tan^{-1} \frac{2x-1}{2x+1} = \tan^{-1} \frac{23}{36}$ (iv) $2 \tan^{-1}(\cos x) = \tan^{-1}(2 \operatorname{cosec} x)$
Q6	Solve the following equations : (i) $\sin^{-1} \frac{3x}{5} + \sin^{-1} \frac{4x}{5} = \sin^{-1} x$ (ii) $\sin^{-1}(1-x) - 2 \sin^{-1} x = \frac{\pi}{2}$ (iii) $\sin[2 \cos^{-1}\{\cot(2 \tan^{-1} x)\}] = 0$
Q7	If $\cos^{-1} \frac{x}{2} + \cos^{-1} \frac{y}{3} = \alpha$, then prove that $9x^2 - 12xy \cos \alpha + 4y^2 = 36 \sin^2 \alpha$.
Q8	Solve: (1) $\cos^{-1} \left(\frac{x^2-1}{x^2+1} \right) + \tan^{-1} \left(\frac{2x}{x^2-1} \right) = \frac{2\pi}{3}$ (2) $\sin 6x + \sin^{-1} 6\sqrt{3}x = -\frac{\pi}{2}$
Q9	If $(\tan^{-1} x)^2 + (\cot^{-1} x)^2 = \frac{5\pi^2}{8}$, then find x
Q10	If $\tan^{-1} \left(\frac{1}{1+1.2} \right) + \tan^{-1} \left(\frac{1}{1+2.3} \right) \dots \tan^{-1} \left(\frac{1}{1+n(n+1)} \right) = \tan^{-1}(x)$, then find x

CASE STUDY1:



Two men on either side of a temple of 30 meters high observe its top at the angles of elevation α and β respectively. (as shown in the figure above). The distance between the two men is $40\sqrt{3}$ meters and the distance between the first person A and the temple is $30\sqrt{3}$ meters. Based on the above information answer the following:

1. $\angle CAB = \alpha =$

- a. $\sin^{-1}(2\sqrt{3})$
- b. $\sin^{-1}(12)$
- c. $\sin^{-1}(2)$
- d. $\sin^{-1}(\sqrt{32})$

2. $\angle CAB = \alpha =$

- a. $\cos^{-1}(15)$
- b. $\cos^{-1}(25)$
- c. $\cos^{-1}(\sqrt{32})$
- d. $\cos^{-1}(45)$

3. $\angle BCA = \beta =$

- a. $\tan^{-1}(12)$
- b. $\tan^{-1}(2)$
- c. $\tan^{-1}(1\sqrt{3})$
- d. $\tan^{-1}(\sqrt{3})$

4. $\angle ABC =$

- a. $\pi/4$
- b. $\pi/6$
- c. $\pi/2$
- d. $\pi/3$

5. Domain and Range of $\cos^{-1}x =$

- a. $(-1, 1), (0, \pi)$
- b. $[-1, 1], (0, \pi)$
- c. $[-1, 1], [0, \pi]$
- d. $(-1, 1), [-\pi/2, \pi/2]$

Subject – Economics

- Q1. Give meaning of money supply. State its components. (2)
- Q2. Define Credit Multiplier. What role does it play in determining the credit creation power of the banking system? Use a numerical illustration to explain. (2)
- Q3. How does a central bank control the availability of credit by open market operation? (2)
- Q4. Explain the role of the Reserve Bank of India as the “lender of last resort”. (2)
- Q5. Explain ‘Banker’s Bank’ function of central bank. (3)
- Q6. Explain ‘Government’s bank’ function of central bank. (3)
- Q7. Explain central bank’s function as currency authority. (3)
- Q8. Explain the components of Legal Reserve Ratio. (3)
- Q9. Explain the role of reverse repo rate in controlling money supply. (5)
- Q10. Explain any two methods of credit control used by Central Bank. (5)

Subject – Informatics Practices

- Q1. Name three data structures available in Pandas. (2)
- Q2. Write a program in Python to create series of vowels. (2)
- Q3 Write a program to create a series from dictionary that stores classes (6,7,8,9,10) as keys and number of students as values. (2)
- Q4. Write the output of the following : (2)
- ```
import pandas as pd
S1 = pd.Series(12, index = [4, 6, 8])
print(S1)
```
- Q5. Which property of series return all the index value? Support with an example. (2)
- Q6. Which property of Series help to check whether a Series is empty or not?  
Explain with example. (2)
- Q7. Write the output (2)
- ```
import pandas as pd
S1 = pd.Series([31, 28, 31, 30, 31], index = ["Jan", "Feb", "Mar", "Apr", "May"])
print(S1["Jun"])
```
- Q8. Write the output of the following : (2)
- ```
import pandas as pd
S1 = pd.Series([31, 28, 31, 30, 31], index = ["Jan", "Feb", "Mar", "Apr", "May"])
print(S1[0 : 2] * 2)
```
- Q9. Explain head and tail functions / methods of Pandas Series. (2)
- Q10. Write the output of the following code : (2)
- ```
import pandas as pd
S1 = pd.Series([2, 5, 7, 10])
S2 = pd.Series([1, 3, 5, 7])
print(S1 + S2)
```

Q11. Consider the following Series object “S1” and write the output of the following statement.

(0.5 *20 =10)

```
0  21
1  41
2  62
3  81
4  23
5  45
6  68
7  89
```

```
import pandas as pd
L1=[21, 41, 62, 81, 23, 45, 68, 89]
S1 = pd.Series(L1)
print("1. ",S1.index)
print("2. ",S1.values)
print("3. ",S1.shape)
print("4. ",S1.ndim)
print("5. ",S1.size)
print("6. ",S1.nbytes)
print("7. ",S1[0])
print("8. ",S1[2]+S1[0])
print("9. ",S1[5]**2)
print("10. ",S1.empty)
print("11.\n",S1[[1, 5, 6]])
print("12.\n",S1[5 : 7],"\n")
print("13.\n",S1[: : -1])
print("14.\n",S1>60)
print("15.\n",S1[S1>60])
print("16.\n",len(S1))
print("17.\n",S1.count())
print("18.\n",S1.head())
print("19.\n",S1.tail())
print("20.\n",S1[4:5] + S1[4:5])
```

Subject – Business Studies

Q.1 Mr Hari Mohan and MsMalti both are fast friends and working as managers in Mata Fabrics Ltd. They are playing a very important role in the company. Through their efforts quality output is maintained, wastage of material is minimized and safety standards are maintained. Identify level of management at which they are working. (1)

- a) Top level
- b) Middle level
- c)Supervisory level
- d) None of these

Q.2 A sales manager may spend more time in planning and staffing during the launch of a new product but at the same time, he does organize current orders, direct his sales team and solve customer's problem. Identify the characteristic of management. (1)

- a) Dynamic
- b) Pervasive
- c) Continuous
- d) Goal oriented

Q.3 The CEO of Radhe Cycles Pvt Ltd. Mr. Kumar wants to get maximum output from the employees at a competitive cost. On the other hand Ramakaant, an employee of the company wants to get the maximum salary while working the least. The Principle of management given by Fayol being violated by Ramakaant is ----- . (1)

- a) Remuneration
- b) Equity
- c) Discipline
- d) Subordination of individual interest to general interest.

Q.4 Under which environmental effect, IBM and coca cola had to leave India? (1)

- a) Political
- b) Social
- c) Economical
- d) Technical

Q.5 Identify the level of management whose basic task is to integrate diverse elements and coordinate the activities of different departments according to the overall objectives of the organisation. State any two functions of the level of management identified. (3)

Q.6 Three teams of employees of Core Project Ltd. are working at different positions:

(a) Team X is responsible for survival and growth of organisation. Team X continuously keeps a watch over the business environment with a view of coping with the changes in the business environment. Team X immediately discusses the change to be brought about in company's plan.

(b) Team Y explains the policies of superiors to the employees and ensures a touch of cooperation among all the departments.

(c) Team Z is responsible for maintaining quality and safety standards and minimize the wastage. Identify the levels of management of Core Project Ltd. at which different teams are designated, by quoting relevant lines. (3)

Q.7 Aapka Vidyalaya believes in the holistic development of students and encourages team building through a mix of curricular, co-curricular and sports activities. On its Founder's Day, a stage performance had to be put up. A committee of ten prefects was constituted to plan different aspects of the function. They all decided to use recycled paper for decoration. There was a spirit of unity and harmony and all the members supported each other. With mutual trust and a sense of belonging, the programme was systematically planned and executed. Kartik, one of the prefects, realised that the group had unknowingly applied one of the principles of management while planning and executing the programme. He was so inspired by the success of this function that he asked his father to apply the same principle in his business. His father replied that he was already using this principle.

a. Identify the principle of management applied for the success of the programme.

b. State any two features of management highlighted in the above paragraph (4)

Q.8 The court passed an order that all schools must have water purifiers for the school children as

i. Society, in general, is more concerned about quality of life.

ii. Innovative techniques are being developed to manufacture water purifiers at competitive rates.

iii. The government is showing positive attitude towards the water purifier business.

iv. Incomes are rising and children at home are also drinking purified water.

Identify the different dimensions of business environment by quoting from the above details. (4)

Q.9 "In an Organisation, there needs to be a clear distinction in terms of the responsibilities of the staff depending upon their area of work." Which technique of Scientific Management is referred to here?

Explain it briefly. (6)

Q.10 "Planning is worth the huge costs involved?" Do you agree? Explain any four reasons in support of your answer. (6)

Subject – Accountancy

Q.1 11% Debentures redeemable within 12 months of the date of balance sheet will be shown under:

- | | | |
|----------------------------|---------------------------|-----|
| a) Short term borrowings | b) Short terms provisions | |
| c) Other current liability | d) Trade payables | (1) |

Q.2 While preparing the balance sheet of a company, securities premium reserve is shown under:

- | | | |
|----------------------------|-------------------------|-----|
| a) Non Current liabilities | b) Share capital | |
| c) Long term borrowings | d) Reserves and surplus | (1) |

Q.3 In case of financial enterprises cash flow from interest and dividend received and interest paid is classified under which activity?

- | | | |
|-----------------------|-------------------------------|-----|
| a) Operating Activity | b) Investing Activity | |
| c) Financing Activity | d) Cash and Cash Equivalents. | (1) |

Q.4 On 1st October, 2021 10% Debentures of Rs. 1,00,000 were issued. Interest on Debenture paid by company for year ended 31st March, 2022 is..... (1)

- | | |
|---------------|---------------|
| a) Rs. 10,000 | b) Rs. 15,000 |
| c) Rs. 5,000 | d) Rs. 2,500 |

Q.5 Explain the objectives of Analysis of Financial Statement. (3)

Q.6 XYZ Ltd. has the following balances on 1st April 2019:

₹

Securities Premium	60,000
General Reserve	1,25,000
Statement of Profit and Loss	2,50,000

During the year ending 31st March 2021, it incurred a loss of ₹ 75,000. Show how these items will be shown in the balance sheet the company and Notes to accounts (3)

Q.7 From the given information, calculate the Inventory turnover ratio: Revenue from operations Rs.5,00,000, Gross Profit 25% on cost of revenue from operations, opening Inventory was 1/3rd of the value of closing Inventory. Closing Inventory was 30% Of Revenue from operations. (4)

Q.8 Under which major head of the statement of profit and loss of a company following items will be shown: (4)

- (i) Sales
(iii) Interest earned

- (ii) Sale of Scrap
(iv) Gratuity Paid

Q.9

i) Calculate total assets to debt ratio from the following:

Capital employed	22,20,000	Equity Share Capital	10,50,000
Current Liabilities	1,80,000	8% Debentures	3,00,000
Fixed Assets	15,00,000	Capital Reserve	2,40,000
Accumulated depreciation	2,00,000	Balance in Statement of P/L	(30,000)
Non -Current Investment	7,00,000	Cash and cash equivalent	1,50,000
Trade Receivable	2,50,000		

ii) Calculate Gross profit ratio from the following:

Cash Revenue from Operations are 25% of Total Revenue from Operations; Purchases Rs.6,90,000;
Credit Revenue from Operations Rs.6,00,000; Excess of Closing inventory over Opening Inventory
Rs.50,000 (6)

Q.10 i) Following Extracted information of Vinod Ltd. is available on 31st March 2021:

Particulars	2021	2020
10% Non-current Investment	4,00,000	3,00,000

Additional Information:

60% of the investment held in the beginning of the year were sold at a gain of 20%. Interest received on investment at the end of the year 31st March 2021 Rs.35,000.

Find out Cash Flow from Investing Activities.

ii) Following Extracted information of Vinod Ltd. is available on 31st March 2021:

Particulars	2021	2020
Share Capital	5,00,000	3,00,000
Securities Premium Reserve	50,000	---
Bank Overdraft at the rate of 8% p.a.	1,20,000	---

Additional Information:

Bank overdraft was availed on 1st December 2020. Interest on Bank overdraft was paid on 31st March 2021.

Find out the Cash flow from Financing Activities. (6)