


ENGLISH
SUBMISSION DATE : 27.6.17

1. Write a Book Review on “The Invisible Man” by H.G Wells, as per the format given below and submit in a folder.

S. No.	CONTENT
1.	Analysis of any three main characters.
2.	Evaluation of Plot and structure
3	Conclusion

2. Design a different and original cover-page for the novel ‘The Invisible Man’. Use it as the cover page for the “Book Review” folder.
3. Here is a list of practical vocabulary words that will help you read and write with better accuracy. Find the meaning of each word and frame sentences with them. Use as many words as you can to make a paragraph, story or poetry. Have fun!!

(Write all this on A4 sheets and add them to the ‘Book Review’ Folder)

Aesthetics	Inundation	Lackadaisical	Discrepant
Coalesce	Misogyny	Patrimony	Evangelical
Nosedive	Dichotomy	Cosmopolitanism	Sacrosanct
Paramour	Philanderer	Vapid	Ramification
Renunciation	Sentient	Epicurean	Parity

MATHEMATICS
Submission Date: 23/06/2017

Complete the following assignment in Maths notebook

- If $\tan^{-1}1 + \tan^{-1}(1/2) = \tan^{-1}\alpha$, find α .
- Evaluate $\sin [\pi - \sin^{-1}(-1)]$.
- Prove that $\cos^2(\tan^{-1}2) + \sin^2(\cot^{-1}3) = 3/10$.
- Find the principal value of $\tan^{-1}[\sin(\sin^{-1}x + \cos^{-1}x)]$, $x \in [-1, 1]$.
- Evaluate $\sin\{1/2 \cos^{-1}(4/5)\}$.
- Evaluate: $\cos(\pi/3 - \sin^{-1}(-\sqrt{3}/2))$.



7. Prove that: $4 \tan^{-1} \frac{1}{5} - \tan^{-1} \frac{1}{70} + \tan^{-1} \frac{1}{99} = \frac{\pi}{4}$
8. Prove: $2 \tan^{-1}(1/2) + \tan^{-1}(1/7) = \tan^{-1}(31/17)$
9. Solve for x: $\tan^{-1}2x + \tan^{-1}3x = \pi/4$
10. Show that $\sin^{-1} 12/13 + \cos^{-1} 4/5 + \tan^{-1} 63/1$
11. Prove that

$$\tan \left(\frac{\pi}{4} + \frac{1}{2} \cos^{-1} \frac{a}{b} \right) + \tan \left(\frac{\pi}{4} - \frac{1}{2} \cos^{-1} \frac{a}{b} \right) = \frac{2b}{a}$$

12. Prove: $2 \tan^{-1}1/2 + \tan^{-1}(1/7) = \tan^{-1}(31/17)$.
13. Solve for x: $\tan^{-1}2x + \tan^{-1}3x = \pi/4$.
14. Prove that $\tan^{-1}(1/5) + \tan^{-1}(1/7) + \tan^{-1}(1/3) + \tan^{-1}(1/8) = 1$.

15. Prove that
$$\tan^{-1} \left(\frac{\sqrt{1+x} - \sqrt{1-x}}{\sqrt{1+x} + \sqrt{1-x}} \right) = \frac{\pi}{4} - \frac{1}{2} \cos^{-1} x, -\frac{1}{\sqrt{2}} \leq x \leq 1$$

16. Prove that
$$\cot^{-1} \left(\frac{\sqrt{1+\sin x} - \sqrt{1-\sin x}}{\sqrt{1+\sin x} + \sqrt{1-\sin x}} \right) = \frac{x}{2}, x \in \left(0, \frac{\pi}{4} \right)$$

17. Prove that
$$\tan^{-1} \left(\frac{\sqrt{1+\cos x} + \sqrt{1-\cos x}}{\sqrt{1+\cos x} - \sqrt{1-\cos x}} \right) = \frac{\pi}{4} + \frac{x}{2}$$

18. Write in simplest form:
$$\tan^{-1} \left(\frac{a \cos x - b \sin x}{b \cos x + a \sin x} \right)$$

19. If $A = \begin{bmatrix} 4 & 3 \\ 2 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 4 \\ 5 & 1 \end{bmatrix}$, verify $(AB)^{-1} = B^{-1}A^{-1}$.

20. Split matrix $\begin{bmatrix} 3 & 1 & 1 \\ 2 & 3 & 4 \\ 1 & 0 & 1 \end{bmatrix}$ in two matrices, one of which is symmetric and the other is skew-symmetric.

21. If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ verify $A^2 - 5A + 7I = 0$, hence find A^{-1} .

22. Find the inverse of $A = \begin{bmatrix} 2 & 3 & 1 \\ 1 & 4 & 1 \\ 2 & 1 & 0 \end{bmatrix}$, using elementary row transformation.

23. If $A' = \begin{bmatrix} -2 & 3 \\ 1 & 2 \end{bmatrix}$, $B = \begin{bmatrix} -1 & 0 \\ 1 & 2 \end{bmatrix}$ find $(A+2B)'$.

24. If $A = \begin{bmatrix} -1 & 4 \\ 3 & -7 \end{bmatrix}$, verify that $(A^2)' = (A')^2$.



25. If $A' = \begin{bmatrix} 3 & 4 \\ -1 & 2 \\ 0 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 2 & 1 \\ 1 & 2 & 3 \end{bmatrix}$ then verify that

$$(A + B)' = A' + B' \quad (\text{ii}) \quad (A - B)' = A' - B'$$

26. For the matrix $A = \begin{bmatrix} 1 & 5 \\ 6 & 7 \end{bmatrix}$, verify that

$$(i) \quad (A + A') \text{ is a symmetric matrix.} \quad (ii) \quad (A - A') \text{ is a skew - symmetric matrix.}$$

27. Using elementary column transformations, find the inverse of the following matrices:

$$(i) \begin{bmatrix} 3 & -1 \\ -4 & 2 \end{bmatrix}$$

$$(ii) \begin{bmatrix} 6 & -3 \\ -2 & 1 \end{bmatrix}$$

28. Prove, using the properties of determinants

$$(i) \begin{vmatrix} 1 & 1 & 1 \\ a & b & c \\ a^2 & b^2 & c^2 \end{vmatrix} = (a-b)(b-c)(c-a) \quad (ii) \begin{vmatrix} a & b & c + \beta \\ a & b + \beta & c \\ a + \beta & b & c \end{vmatrix} = \beta^2(a + b + c + \beta)$$

$$(iii) \begin{vmatrix} a & b & c \\ ab & bc & ca \\ a^2 & b^2 & c^2 \end{vmatrix} = abc \quad (iv) \begin{vmatrix} 1 + a & 1 & 1 \\ 1 & 1 + b & 1 \\ 1 & 1 & 1 + c \end{vmatrix} = abc \left(1 + \frac{1}{a} + \frac{1}{b} + \frac{1}{c} \right)$$

$$(v) \begin{vmatrix} x + y & x & x \\ 6x + 4y & 4x & 6x \\ 10x + 8y & 8x & 3x \end{vmatrix} = x^3 \quad (vi) \begin{vmatrix} y + z & z & y \\ z & z + x & x \\ y & x & x + y \end{vmatrix} = 4xyz$$

$$(vii) \begin{vmatrix} a - b - c & 2a & 2a \\ 2b & b - c - a & 2b \\ 2c & 2c & 10a - 6b + 3c \end{vmatrix} = (a + b + c)^3$$

29. Find the quadratic function defined by $f(x) = ax^2 + bx + c$, if $f(0) = 6$, $f(2) = 11$ and $f(-3) = 6$, using matrix method.

30. Find the product $\begin{bmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{bmatrix} \begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix}$, using the product solve the following system of equations :

$$x - y = 3$$

$$2x + 3y + 4z = 17$$

$$y + 2z = 7$$



ACCOUNTANCY

Make a Project File containing 3 projects:-

A. COMPREHENSIVE PROJECT- comprising of

- a) Case Study
- b) Journal
- c) Ledger
- d) Trial balance
- e) Financial Statements
- f) Ratio analysis

B. SPECIFIC PROJECT I :- Based on Cash flow statement.

C. SPECIFIC PROJECT II: - Based on Segment reporting.

Following essentials are required to be fulfilled for project preparation and submission.

1. Total length of the project will be of 25 to 30 pages.
2. Project should be neatly handwritten and presentable with page number marked.
3. Project report should be developed in the following sequence-
 - Cover page should include the title of the Project, student information, school and year.
 - List of contents.
 - Acknowledgements and preface (acknowledging the institution, the places visited and the persons who have helped).
 - Introduction.
 - Topic with suitable heading.
 - Planning and activities done during the project, if any.
 - Analysis, interpretation and presentation of information.
 - Conclusions (summarized suggestions or findings, future scope of study).
 - Appendix.

BUSINESS STUDIES

Submission Date: 27/06/2017

Each student to prepare and submit his/her allotted project report.

Following essentials are required to be fulfilled for project preparation and submission.

1. Total length of the project will be of 25 to 30 pages.
2. Project should be neatly handwritten and presentable with page number marked.
3. Project report should be developed in the following sequence-



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- Cover page should include the title of the Project, student information, school and year.
- List of contents.
- Acknowledgements and preface (acknowledging the institution, the places visited and the persons who have helped).
- Introduction.
- Topic with suitable heading.
- Planning and activities done during the project, if any.
- Observations and findings of the visit.
- Photographs (if any)
- Analysis, interpretation and presentation of information.
- Conclusions (summarized suggestions or findings, future scope of study).
- Appendix.

INFORMATICS PRACTICES

Submission Date: 21/06/2017

Q1. Make a Projectfile on any one of the following topics:

1. Super Market Inventory System
2. Library Management System
3. Railway Ticket Reservation System
4. School Management System
5. Hospital Management System
6. Banking System
7. Quiz Program

Your report should include the following:

1. Acknowledgement
2. Preface
3. Index
4. Project Introduction
5. Code
6. Text and any other files used in the project
7. Code output

Please provide a softcopy of the program in the CD


PHYSICAL EDUCATION

Complete the following reports in Record File

1. Write benefits of Yogasanas (10), Swiss ball and Polymetric.
2. Athletics – Middle and Long Distance runs and Throws. (The events must be other than from those administered under Physical Fitness Test).
3. Draw a neat diagram of the Field/ Court of any one Game of choice (Athletics, Basketball, Football, Handball, Hockey, KhoKho and Volleyball). Write its history, rules & regulations, terminologies and important tournaments.
4. Measure Resting Heart Rate and Respiratory Rate of ten members from family or neighbourhood for three weeks and show graphical representation of the data.

ECONOMICS
Submission Date: 23/06/2017
Important instructions

- a) **Complete all tests in a separate register.**
- b) **Practice all numerical of Nation Income and Accounting.**

TEST – 1
TOPIC- INTRODUCTION

1. State whether the following statements are true or false. Give reasons. (1X5=5)
 - a) A free medicine given to the patients in hospitals is not a scarce commodity.
 - b) Choice between “production for poor” and production for the rich” refers to the problem of what to produce.
 - c) When output of Good1 increases from 100 units to 110 units and output of Good 2 decreases from 400 units to 350 units, marginal opportunity cost = 50 units.
 - d) If an economy is operating inside the PPC, it is possible to increase the production of Good 1 without any decrease in production of Good2.
2. When PPC be a straight line? (1)
3. What is slope of PPC? What does it show? (3)
4. Do all attainable combinations point to the same level of output? (3)
5. How is production possibility frontier affected when resources are inefficiently employed in an economy? (3)



6. Draw a transformation curve, given the following possibilities of production (resources and technology remaining constant). Also, find the MOC when more and more guns are produced in place of bread. (4)

Guns(units)	0	1	2	3	4	5
Bread(units)	30	28	24	18	10	0

7. Assuming that no resources are equally efficient in production of all goods, name the curve which shows production potential of the economy. Explain give reasons, its properties. (6)

TEST 2

TOPIC- CONSUMER EQUILIBRIUM.

1. Give an equation of budget line (1)
2. What is meant by monotonic preferences? (1)
3. What is budget set? When it can shift to right? (2)
4. Suppose a consumer can afford to buy 6 units of Good 1 and 8 units of Good2, if she spends entire income. The prices of the two goods are Rs, 6 and Rs. 8 respectively. How much is consumer's income? (1)
5. A consumer consumes only two goods X and Y. If marginal utilities of X and Y are 4 and 5 respectively, and if price of X is Rs. 5 per unit and that of Y is Rs 4 per unit, is the consumer in equilibrium? What will be further reaction of the consumer? (3)
6. Explain the conditions of consumer's equilibrium using indifference curve analysis. (6)
7. Define indifference curve. Explain the properties (6)

TEST 3

TOPIC- DEMAND THEORY & ELASTICITY OF DEMAND

1. When does "increase in demand" take place?
2. Explain how fall in price of related goods influence demand for a good. Use diagram
3. Mention the reason for rightward shift in demand curve.
4. What is market demand? Explain the factors determining market demand.
5. Explain law of demand with the help of demand schedule.
6. Law of demand derived from law of diminishing marginal utility. Explain how. Give an illustration using single commodity equilibrium condition.
7. Explain the distinction between "change in quantity demanded" and change in demand. Use diagrams.
8. Explain the effects of change in income on demand for a good. Use diagram

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9. Price elasticity of demand of good X is -2 and of good Y is -3. Which of the two goods is more price elastic and why?
10. When price of a good is Rs. 7 per unit a consumer buys 12 units. When price falls to Rs.6 per unit he spends Rs. 72 on the good. Calculate price elasticity of demand by using the percentage method. Comment on the likely shape of demand curve based on this measure of elasticity.
11. A consumer buys 10 units of a good at a price of Rs. 9 per unit. At price of Rs. 10 per unit he buys 9 units. What is price elasticity of demand? Use expenditure approach comment on the likely shape of demand curve on the basis of this measure of elasticity.
12. A consumer buys 20 units of a good at a price of Rs. 5 per unit. He incurs an expenditure of Rs. 120 when he buys 24 units. Calculate price elasticity of demand of the percentage method. Comment on the likely shape of demand curve based on this information.
13. Price elasticity of good X is known to be thrice that of Good Y. If price of the Good X increases by 20% and price of the good Y decreases by 40% then calculate percentage changes in demand in both the cases.
14. The price elasticity of demand for good X and Y are known to be 1 and 2 respectively. Price of X rises by 5% while that of good Y falls by 5%. What are the percentage changes in the quantities demanded of X and Y.
15. The price elasticity of good X or Y are equal. The demand of X rises from 100 units to 150 units due to a 20 percent fall in its price. Calculate the percentage rise in demand of Y, if its price falls by 8 percentages.

NOTE:

- c) Complete all tests in a separate register.
- d) Practice all numerical of Nation Income and Accounting.

Happy Holidays!