

St. Pushpa Senior Secondary School

Summer Assignment, Session 2024-25

Class: XII

- ENGLISH LANGUAGE

1. The Product Description.
2. A Process Description (Instruction to operate a device or a recipe or a scientific experiment).
3. Description of a Sporting Event.
4. An Autobiography.
5. Review of a Film or Television Serial.

- ENGLISH LITERATURE

INDEX NUMBER: 001-011

Refer to Macbeth's soliloquy in Act 3, Scene 1, where he contemplates the consequences of murdering Duncan and Banquo. Discuss how Shakespeare uses language and imagery to convey Macbeth's inner turmoil and moral conflict.

INDEX NUMBER: 012-021

Why do you think the poet chose the title "Telephone Conversation"? Is he justified in choosing this title? Give reasons to support your answer.

INDEX NUMBER: 022-031

Describe the appropriateness of the story's title, 'Atithi'.

INDEX NUMBER: 032-041

Analyse Macbeth's motivations for ordering Banquo's murder and Lady Macbeth's role in encouraging him. Consider how this act of violence further destabilises Macbeth's rule and contributes to the play's themes of ambition and power.

INDEX NUMBER: 042-066

Give a character sketch of the speaker as understood from the narrative given in the poem "Telephone Conversation."

- PHYSICS

Note: All questions are compulsory and the sole purpose of this assignment is to make you revise the whole syllabus of term 1st and summarise all things in your own words.

1. State laws of reflection and obtain an expression for the focal length of spherical mirrors. Also, find out magnification in the case of a mirror. Solve numerical problems based on the above-mentioned topics.

2. State and explain Snell's law. Obtain an expression for critical angle. Write a few applications of total internal reflection. Obtain lens maker formula.
3. Explain Einstein's equation of the photoelectric effect. Explain the related term (cutoff potential, threshold frequency, work function).
Explain all the graphs given in your syllabus related to the above phenomenon.
4. Obtain an expression for the distribution of intensity of light in case of interference of light from a double slit. Draw the interference pattern and explain the conditions of maxima and minima.

• CHEMISTRY

1. Chemistry in everyday life/ chemicals in medicines: antiseptics, antibiotics, antacids etc and also write about different types of antibiotics, structures and uses in everyday life.
2. Organic chemistry in nutrition, food science and technology.
3. Nucleic acids: DNA and RNA- Their structure, unique nature, importance in evolution and their characteristic features.
4. Write about different types of Vitamins and Hormones, their structures and functions. Also, write diseases due to their deficiencies.

• HINDI

- दासी कहानी का विस्तृत विश्लेषण कीजिए तथा बताइए की दासी एक ऐतिहासिक कहानी है।
- तुलसीदास के पदों के आधार पर उनकी भक्ति भावना को प्रकाश डालिए तुलसीदास के किन्हीं पांच रचनाओं का संक्षिप्त विश्लेषण कीजिए।
- जाग तुझको दूर जाना है कविता की विवेचना प्रस्तुत कीजिए तथा बताइए की कविता में किस प्रकार का रहस्यवाद है।
- नाटक कला की दृष्टि से आषाढ़ का एक दिन किस प्रकार का नाटक है। नाटक के नायक नायिका एवं खलनायक के चरित्रिक विशेषताओं का वर्णन कीजिए।
- कालिदास का संक्षिप्त जीवन परिचय प्रस्तुत करते हुए उनके प्रमुख रचनाओं का संक्षिप्त अध्ययन प्रस्तुत कीजिए।

• COMPUTER

24. (a) Given the Boolean function:

$$F(A, B, C, D) = (0, 1, 2, 3, 5, 7, 8, 9, 10, 11)$$
 1. Reduce the above expression by using 4-variable Karnaugh map, showing the various groups (ie, octet, quads and pairs).
 2. Draw the logic gate diagram for the reduced expression. Assume that the variables and their complements are available as inputs

(b) Given the Boolean function

$$P(A, B, C, D) = ABCD + ABC'D' + A'BC'D' + A'BC'D + ABC'D + ABCD$$

1. Reduce the above expression by using 4-variable K-Map, showing the various groups (ie, octet, quads and pairs).
2. Draw the logic gate diagram of the reduced expression. Assume that the variables and their complements are available as inputs.

- MATHEMATICS

(For Group- A)

Topics- (i):-Draw the graph of $y = \sin^{-1} x$ (or any other inverse trigonometric function), using the graph of $y = \sin x$ (or any other relevant trigonometric function). Demonstrate the concept of mirror line (about $y = x$) and find its domain and range.

(ii):-Draw a rough sketch of Cost (C), Average Cost (AC) and Marginal Cost (MC).

(For Group- B)

Topics:- (i):- “INTRODUCTION OF PROBABILITY AND ITS APPLICATIONS”

(ii):-Using Vector algebra, find the area of a parallelogram/triangle. Also, derive the area analytically and verify the same.

(For Group C)

Topics:- (i):- “INTEGRALS AND APPLICATIONS OF INTEGRALS”

(ii):-Find the area bounded by a circle and a parabola.

- BIOLOGY

1. What is biotechnology? Explain all the steps of recombinant DNA technology. Give a detailed account of applications of biotechnology in human welfare.
2. Discuss the problems of reproductive health and its strategies. Mention some sexually transmitted diseases and genetical diseases in detail.
3. Explain the process of DNA replication along with the name of enzymes and their role in this process. Discuss the experiment of Meselson-Stahl which proved that replication of DNA is semi-conservative.