

Class : XII

SUBJECT: ENGLISH

With reference to the poem 'Aunt Jennifer's Tigers', prepare a Power Point Presentation with the following slides.

1. About the poet
2. Summary
3. Theme
4. Message
5. Literary Devices
6. Critical Analysis
7. It's relevance to the world

The PPTs should be mailed to the mail ids given below.

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SUBJECT: MATHEMATICS (STANDARD)

Q1: Show that the direction cosines of the vector equally inclined to the axis OX, OY and

OZ are $\frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}}$ respectively.

Q2: Show that the vectors $2\vec{i} - \vec{j} + \vec{k}$, $\vec{i} - 3\vec{j} - 5\vec{k}$ and $3\vec{i} - 4\vec{j} - 4\vec{k}$ form the vertices of a right angled triangle. Also find the length of the hypotenuse of the triangle.

Q3: If $\vec{a} = \vec{i} + 4\vec{j} + 2\vec{k}$, $\vec{b} = 3\vec{i} - 2\vec{j} + 7\vec{k}$, $\vec{c} = 2\vec{i} - \vec{j} + 4\vec{k}$. Find a vector \vec{d} which is perpendicular to both \vec{a} and \vec{b} , Also $\vec{c} \cdot \vec{d} = 15$.

Q4: If $\vec{a} = \frac{1}{7}(2\vec{i} + 3\vec{j} + 6\vec{k})$, $\vec{b} = \frac{1}{7}(3\vec{i} - 6\vec{j} + 2\vec{k})$, $\vec{c} = \frac{1}{7}(6\vec{i} + 2\vec{j} - 3\vec{k})$, then prove that the given three vectors are unit vectors and they are mutually perpendicular to each other.

Q5: Show that the lines $\frac{x-1}{3} = \frac{y+1}{2} = \frac{z-1}{5}$ and $\frac{x-2}{4} = \frac{y-1}{3} = \frac{z+1}{-2}$ do not intersect each other.

Q6: Show that the lines $\frac{x-1}{2} = \frac{y-3}{4} = -z$ and $\frac{x-4}{3} = \frac{1-y}{2} = z-1$ are coplanar. Also find the equation of the plane containing these lines.

Q7: Show that the four points A, B, C and D, with position vectors $4\hat{i} + 5\hat{j} + \hat{k}$, $-(\hat{j} + \hat{k})$, $3\hat{i} + 9\hat{j} + 4\hat{k}$ and $4(-\hat{i} + \hat{j} + \hat{k})$ respectively are coplanar.

- Q8: Find the vector and cartesian equation of the plane which is at a distance of $\frac{6}{\sqrt{29}}$ units from the origin and its normal vector from the origin is $2\hat{i} - 3\hat{j} + 4\hat{k}$. Also find its Cartesian form, its intercepts with x, y and z axis.
- Q9: Solve the following linear programming problem graphically: Minimize $Z = 200x + 500y$ subject to : the constraint $x + 2y \geq 10$, $3x + 4y \leq 24$, $x \geq 0$, $y \geq 0$.
- Q10: A dealer deals in two item A and B. He has Rs15,000 to invest and a space to store at the most 80 pieces. Item A cost him Rs300 and item B costs him Rs150. He can sell items A and B at the profits of Rs40 and Rs25 respectively. Assuming that he can sell all that he buys, formulate the above as a linear programming problem for maximum profit and hence solve graphically.

SUBJECT: MATHEMATICS (APPLIED)

Q1: Evaluate : $\int \left(x^{\frac{3}{2}} + 2e^x - \frac{1}{x} \right) dx$.

Q2: Evaluate : $\int \left[\log(\log x) + \frac{1}{(\log x)^2} \right] dx$

Q3: Evaluate: $\int_0^{\pi/4} \frac{\sin x \cos x}{\cos^4 x + \sin^4 x} dx$

Q4: Evaluate: $\int \frac{\cos 2x - \cos 2\alpha}{\cos x - \cos \alpha} dx$

Q5: Evaluate the integral $\int_1^4 f(x) dx$ where $f(x) = |x-1| + |x-2| + |x-3|$

Q6: Find the area of the region bounded by the curve $y = x^2$ and the line $y = 5$.

Q7: Find the area of the region bounded by $x^2 = 4y$, $y = 2$, $y = 4$ and the y -axis in the first quadrant

Q8: Verify that the function $y = x \sin x$ is a solution of the differential equation:

$$x \frac{dy}{dx} = y + x\sqrt{x^2 - y^2}$$

Q9: Verify that the function $xy = \log y + C$ is a solution of the differential equation:

$$\frac{dy}{dx} = \frac{y^2}{1 - xy}, \quad xy \neq 1$$

Q10: Find the order and degree of the differential equation $\left(\frac{d^2 y}{dx^2} \right)^3 + \sin \left(\frac{dy}{dx} \right)^4 - y = 0$.

SUBJECT: SCIENCE

Physics

1. How does the angular separation between fringes in single slit diffraction experiment change when the distance of separation between the slit and screen is doubled?
2. How does the fringe width, in Young's double-slit experiment, change when the distance of separation between the slits and screen is doubled?

3. A ray of light passing through an equilateral glass prism undergoes a minimum deviation when the angle of incidence is $3/4^{\text{th}}$ of the angle of prism. Calculate the speed of light in the prism.
4. Two monochromatic rays of light are incident normally on the face AB of an isosceles right angled prism ABC. The refractive indices of the glass prism for the two rays '1' and '2' are respectively 1.3 and 1.5. Trace the path of these rays after entering through the prism.
5. (i) Draw a neat labeled ray diagram of an astronomical telescope in normal adjustment.
(ii) An astronomical telescope uses two lenses of powers 10 D and 1 D. What is its magnifying power in normal adjustment?
6. In Young's double slit experiment, the two slits 0.15 mm apart are illuminated by monochromatic light of wavelength 450 nm. The screen is 1.0 m away from the slits.
(a) Find the distance of the second (i) bright fringe, (ii) dark fringe from the central maximum.
(b) How will the fringe pattern change if the screen is moved away from the slits?
7. Use Huygen's principle to show how a plane wavefront propagates from a denser to rarer medium. Hence verify Snell's law of refraction.
8. (a) Describe briefly how a diffraction pattern is obtained on a screen due to a single narrow slit illuminated by a monochromatic source of light. Hence obtain the conditions for the angular width of secondary minima.
(b) Two wavelengths of sodium light of 590 nm and 596 nm are used in turn to study the diffraction taking place at a single slit of aperture 2×10^{-6} m. The distance between the slit and the screen is 1.5 m. Calculate the separation between the positions of first maxima of the diffraction pattern obtained in the two cases.
9. Draw a ray diagram showing the path of a ray of light entering through a triangular glass prism. Deduce the expression for the refractive index of glass prism in terms of the angle of minimum deviation and angle of the prism.
10. Define power of a lens. Write its S.I. unit. Two thin convex lenses of focal length f_1 and f_2 are placed in contact coaxially. Derive the expression for the effective focal length of the combination.

Chemistry

1. Why Cr^{2+} is a strong reducing agent whereas Mn^{3+} with same (d^4) configuration is an oxidising agent.
2. Which element in the first series of transition elements does not exhibit variable oxidation states and why?
3. Explain the following:
(i) Low spin octahedral complexes of nickel are not known.
(ii) CO is a stronger ligand than NH_3 for many metals.
4. What are pseudo first order reaction? Give one example of such reaction.
5. Explain the following terms (i) electrophoresis. (ii) Peptisation.

6. For the complex $[\text{Fe}(\text{en})_2\text{Cl}_2]\text{Cl}$, identify the following:
 - I. Oxidation number of iron
 - II. Hybrid orbitals and shape of the complex.
 - III. Magnetic behaviour of the complex.
 - IV. Number of its geometrical isomers .
 - V. Whether there may be optical isomer also
 - VI. Name the complex .
7. Explain what is observed when :
 - (i) an electric current is passed through a sol?
 - (ii) a beam of light is passed through a sol?
 - (iii) an electrolyte is added to ferric hydroxide sol?
8. Express the relation among cell constant, resistance of the solution in the cell and conductivity of the solution. How is molar conductivity of solution related to its conductivity.
9. Show that time required for 99% completion is twice the time required for the completion of 90% reaction.
10. (i) Account for the following:
 - (a) The transition metals and their compounds act as good catalyst.
 - (b) The lowest oxide of transition metal is basic, the highest is amphoteric or acidic.
 - (c) A transition metal exhibits higher oxidation states in oxides and fluorides.
 - (d) Describe the reactions involved on the preparation of $\text{K}_2\text{Cr}_2\text{O}_7$ from chromite ore.

Biology

1. The following are some well-known abbreviations, which have been used in the 'Human health and diseases' chapter. Expand each one to its full form:

(a) MALT	(b) CMI	(c) AIDS	(d) NACO	(e) HIV.
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2. Differentiate the following and give examples of each:
 - (a) Innate and acquired immunity
 - (b) Active and passive immunity.
3. Draw a well- labelled diagram of an antibody molecule.
4. How is a cancerous cell different from a normal cell?
5. List the harmful effects caused by alcohol/drug abuse.
6. Describe about Origin of replication.
7. Explain about Downstream processing.
8. Briefly explain about Bioreactor.
9. Explain briefly
 - (a) PCR
 - (b) Restriction enzymes and DNA
 - (c) Chitinase
10. Distinguish between:
 - (a) Plasmid DNA and Chromosomal DNA
 - (b) RNA and DNA
 - (c) Exonuclease and Endonuclease

SUBJECT: ACCOUNTANCY

- Q1.** State any two deductions that have to be made from the amount payable to the legal representative of a deceased partner.
- Q2.** When is the Partner's Executors Account prepared?
- Q3.** State the need for treatment of goodwill at the time of retirement of a partner.
- Q4.** Give two circumstances in which the gaining ratio is applied.
- Q5.** Distinguish between Gaining Ratio and Sacrificing Ratio.
- Q6.** Who is an Executor?
- Q7.** What adjustments are required at the time of retirement of a partner?
- Q8.** State the ratio in which the retiring partner's share of goodwill is debited to remaining partners.
- Q9.** Give the journal entry to distribute the 'Workmen Compensation Reserve' of Rs. 70,000 at the time of retirement of Neeti, when there is claim of Rs. 25,000 against it. The firm has three partners Raveena, Neeti and Rajat.
- Q10.** X, Y and Z are partners in a firm sharing profit and losses in the ratio of 2: 1: 1. Y retires on 31st March, 2011. On that date, there was a balance Rs. 24,000 in General Reserve and Rs. 16,000 in Profit and Loss A/c of the firm. Give Journal entries.
- Q11.** A, B and C are partners in a firm. B retires from the firm on the 1st January, 2015. On the date of his retirement Rs. 66,000 were due to him. It was decided that the payment will be done in 3 equal yearly instalments together with interest @ 10% p.a. on the unpaid balance. Prepare B's Loan A/c.
- Q12.** X, Y and Z are partners in a firm sharing profits in the ratio of 2: 2: 1 X retires and after all adjustments the Capital A/cs of the Y and Z have a balance of Rs. 70,000 and Rs. 50,000 respectively. They decided to adjust their capitals in new profit-sharing ratio by withdrawing or bringing cash. Give necessary journal entries and show your working clearly.
- Q13.** R, S & T are partners in a firm sharing profit & loss in the ratio of 2: 2: 1. T retires and balance in his Capital A/c after adjustment for reserve & revaluation of assets & liabilities comes out to be Rs. 50000. R and S agree to pay him Rs. 60000. Give journal entry for the adjustment of goodwill.
- Q14.** Vijay, Vivek and Vinay are partners in a firm sharing profits in the ratio 2: 2: 1. Vivek retires from the firm as on 31.3.2015. The Balance Sheet the firm on the date of Vivek's retirement was as follows:

Liabilities	Rs.	Assets	Rs.
Creditors	54,000	Bank	55,000
Bill Payable	24,000	Debtor 12,000	
Outstanding Rent	4,400	Less: Provision for	
Provision for Legal Claim	12,000	Doubtful debts <u>800</u>	11,200
Capital A/cs:		Stock	18,000
Vijay 92,000		Furniture	8,200
Vivek 60,000		Premises	1,94,000
Vinay <u>40,000</u>	1,92,000		
	2,86,400		2,86,400

The following terms were agreed upon Vivek's retirement:

- (i) Premises will be appreciated by 5% and furniture will be appreciated by Rs. 2,000. Stock will be depreciated by 10%.
- (ii) Provision for bad debts was to be made at 5% on debtors and provision legal damages to be made for Rs. 14,400.
- (iii) Goodwill of the firm is valued at Rs. 48,000.
- (iv) Rs. 50,000 from Vivek's Capital A/c will be transferred to his Loan A/c and balance will be paid by cheque.

Prepare Revaluation A/c, Partners' Capital A/cs and Balance Sheet of Vijay and Vinay's firm after Vivek's retirement.

Q15. M, N and O were partners in a firm sharing profits and losses equally. Their Balance Sheet as on 31-12-2019 was as follows:

Liabilities		Assets	
Capitals A/cs:			60,000
M 70,000		Plant and machinery Stock	30,000
N 70,000	2,10,000	Sundry Debtors Cash at	95,000
O <u>70,000</u>	30,000	Bank Cash in Hand	40,000
General Reserve Creditors	20,000		35,000
	2,60,000		2,60,000

N died on 14th March, 2020. According to the Partnership Dead, executors on the deceased partner are entitle to:

- (i) Balance of partner's capital A/c
- (ii) Interest on capital @ 5% p.a.
- (iii) Share of goodwill calculated on the basis of twice the average of past three years profits.
- (iv) Share of profits from the closure of the last accounting year till the date of the death on the basis of twice the average of three completed years profit before death.

Profits for 2017, 2018 and 2019 were Rs. 80,000, Rs. 90,000 and Rs. 1,00,000 respectively.

Show the working for deceased partner's share of goodwill and profits till the date of his death. Also, pass the necessary journal entries and prepare N's Capital A/c to be renderer to his executors.

SUBJECT: BUSINESS STUDIES

1. Define the term 'Leadership'.
2. Explain the steps involved in the process of controlling function of management.
3. 'Supervision is not at all required in an organization.' Do you agree? Give two reasons in support of your answer.
4. What is meant by financial incentives? Explain any two financial incentives.
5. Explain how 'Critical Point Control' helps in controlling process.

SUBJECT: ENTREPRENEURSHIP

1. Explain Porter's Generic Value Chain.
2. Write down reasons for failure of Merger and Acquisition.
3. What is acquisitions? Explain four types of Acquisition.
4. Explain various types of Merger?
5. Write down various types of Franchising?

SUBJECT: COMPUTER SCIENCE & INFORMATICS PRACTICES**TOPIC : Database Concept & SQL**

1. Explain the following terms with respect to Database concept:
 - (a) Database
 - (b) Relation
 - (c) Tuples
 - (d) Attributes
 - (e) Degree
 - (f) Cardinality
 - (g) Primary Key
 - (h) Alternate Key
 - (i) Candidate Key
 - (j) Foreign Key
 - (k) Data Redundancy
 - (l) Data Inconsistency
 - (m) Database Administrator (DBA)
 - (n) Data Definition Language (DDL)
 - (o) Data Manipulation Language (DML)
 - (p) Transaction Control Language (TCL)
 - (q) Data Control Language (DCL)
2. Explain with example for the given SQL Commands:
 - (a) CREATE DATABASE
 - (b) USE
 - (c) CREATE TABLE
 - (d) DESCRIBE
 - (e) INSERT
 - (f) DELETE
 - (g) DROP TABLE
 - (h) ALTER TABLE
 - (i) UPDATE
 - (j) SELECT

SUBJECT: ECONOMICS

1. Explain briefly the determination of equilibrium level of income. Use diagram.
2. Explain with the help of saving and investment curves, the equilibrium level of income in an economy. Is equality between saving and investment necessary for full employment?
3. Explain the equilibrium level of income with the help of saving and investment curves. If savings exceed planned investment, what changes will bring about the equality between them?

4. How is S and I approach derived from AD and AS approach of income determination. Use diagram.
5. Explain the role of the following in correcting excess demand/inflationary gap in an economy.
 - (a) Bank rate
 - (b) Open market operations
 - (c) Legal reserve ratio
 - (d) Margin requirements
 - (e) Government's expenditure

SUBJECT: PHYSICAL EDUCATION

1. How is disability different from a disorder?
2. What is interval and fartlek training? Explain.
3. What you understand by Physical Activity?
4. ADHD affects a child's
 1. Sensitivity to stimuli
 2. Academic performance
 3. Threshold of anger
 4. All of the above
5. Explain three causes that are behind intellectual disability.
6. Explain the nature and causes of Physical disability.
7. What is the role of yoga in preventing lifestyle diseases?
8. Discuss various types of friction.
9. What are the different types of body movements? Explain.
10. What do you mean by personality? Explain its dimensions in details.

SUBJECT: HINDUSTANI VOCAL MUSIC

- Q1: Ustaaad Bade Ghulam Ali Khan, one of the most popular vocalist of India, belongs to which gharana?
- Q2: An arrangement having a gradual aaroh and avroh of the seven swaras is known as---
- Q3: Which Raga in Hindustani classical music is equivalent to Raga Hindolam in Carnatic music?
- Q4: Rag Malkauns belongs to which 'that'?
- Q5: What is the vadi-samvadi swara of Rag Malkauns?
- Q6: Who was the writer of Sangeet Parijat?
- Q7: How many 'matras' are there in Jhaptal?
- Q8: Ustad Bade Ghulam Ali Khan was honoured with Padma Bhushan in which year?
- Q9: Write the taal notation of taal Tilwada with dugun.
- Q10: Write the notation of Drut khayal in Rag Malkauns.

SUBJECT: PAINTING

1. Make two landscapes with watercolour in A3 size watercolour paper.
2. Make one Indian manuscript painting in pipal or banana leaf .

Note:

Submit your project in kalamandapam (art room)

