

Advance Level

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Accounting

Textbooks:

- Cambridge International As and A level Accounting By –Harold Randall and David Hopkins
- Advanced Accounting M.M Khan(Vol-1)/Hanif Mukharzee
- Management Accounting (Garison/A.C Shukla/Basu & Dass/Yousuf Ali)

Quarter One		
Unit title	Content	Chapter (Textbook)
Preparation of Financial statement International Accounting standard Auditing and Stewardship of limited company	<ul style="list-style-type: none"> • Non-profit making organization • Manufacturing business • Limited company • International accounting standard (IAS) (from ref. book including ch.27) • Auditing (ref. book) 	Chapter 17,19,23,25,27

Quarter Two		
Unit title	Content	Chapter (Textbook)
Financial accounting Consignment and joint venture account Analysis and communication of Accounting	<ul style="list-style-type: none"> • Business purchase • Consignment and Joint venture accounts • Computerized Accounting system (ref. book) • Ratio analysis • Standard costing • Investment appraisal 	Chapter -26,28,35,36

Quarter Three		
Unit title	Content	Chapter (Textbook)
Activity based costing Budgeting and budgetary control	<ul style="list-style-type: none"> • ABC • Budgeting 	(Ref. book) Chapter-34

Biology

Textbooks:

- A Coursebook for Biology 4th Edition

Quarter One		
Unit Title	Content	Chapter(Textbook)
Energy and respiration	<ul style="list-style-type: none">• Energy• Respiration	Chapter-12 Energy and respiration
Photosynthesis	<ul style="list-style-type: none">• Photosynthesis as an energy transfer process• Investigation of limiting Factors• Adaptations for photosynthesis	Chapter-13 Photosynthesis
Homeostasis	<ul style="list-style-type: none">• Homeostasis in mammals• Homeostasis in plants	Chapter-14 Homeostasis

Quarter Two		
Unit Title	Content	Chapter(Textbook)
Control and co-ordination	<ul style="list-style-type: none">• Control and co-ordination in Mammals• Control and co-ordination in plants	Chapter-15. Control and co-ordination
Inherited change	<ul style="list-style-type: none">• Passage of information from parent to offspring• The roles of genes in determining the phenotype• Gene control	Chapter-16. Inherited change
Selection and evolution	<ul style="list-style-type: none">• Variation• Natural and artificial Selection• Evolution	Chapter-17. Selection and evolution

Business Studies

Quarter One		
Unit Title	Content	Textbook
Strategic management	<ul style="list-style-type: none"> • What is strategic management? • Strategic analysis • Strategic choice • Strategic implementation 	Cambridge International AS and A Level Business by Peter Stimpson and Alastair Farquharson
Marketing	<ul style="list-style-type: none"> • Marketing planning • Globalisation and international marketing 	

Quarter Two		
Unit Title	Content	Textbook
People in organisations	<ul style="list-style-type: none"> • Human resource management • Organisational structure • Business communication 	Cambridge International AS and A Level Business by Peter Stimpson and Alastair Farquharson
Finance and accounting	<ul style="list-style-type: none"> • Costs • Budgets • Contents of published accounts • Analysis of published accounts • Investment appraisal 	

Quarter Three		
Unit Title	Content	Textbook
Business and its environment	<ul style="list-style-type: none"> • Business structure • Size of business • External influences on business activity 	Cambridge International AS and A Level Business by Peter Stimpson and Alastair Farquharson
Operations and project management	<ul style="list-style-type: none"> • Operations planning • Capacity utilisation • Lean production and quality management • Project management 	

Chemistry

Quarter One		
Unit title	Content	Chapter (Textbook)
Lattice energy	<ul style="list-style-type: none"> • Enthalpy changes: ΔH of formation, combustion, hydration, solution, neutralisation and atomisation; bond energy; lattice energy; electron affinity II Hess' Law, including • Born- Haber cycles 	Chemistry Course book Longman A Level Chemistry
Electrochemistry	<ul style="list-style-type: none"> • Electrode potentials • Standard electrode (redox) potentials, E^{\ominus}; the redox series • Standard cell potentials, $E^{\ominus}_{\text{cell}}$, and their uses • Batteries and fuel cells III Electrolysis • Factors affecting the amount of substance liberated during electrolysis • The Faraday constant: the Avogadro constant: their relationship 	
Equilibria	<ul style="list-style-type: none"> • Ionic equilibria • Brønsted-Lowry theory of acids and bases • Acid dissociation constants, K_a and the use of pK_a • The ionic product of water, K_w • pH: choice of pH • Indicators • Buffer solutions • Solubility product; the • common ion effect 	

Quarter Two		
Unit title	Content	Chapter (Textbook)
Group IV	<ul style="list-style-type: none"> • The variation in melting points and electrical conductivities of • the Elements • The bonding, molecular shape, volatility and hydrolysis of the tetrachlorides • The bonding, acid/base nature and thermal stability of the oxides of oxidation • states II • The relative stability of higher and lower oxidation states for the elements in their oxides and aqueous cations 	Chemistry Course book Longman A Level Chemistry
Chemistry of transition elements	<ul style="list-style-type: none"> • General physical and characteristic chemical properties of the first set of transition elements, titanium to copper • Colour of complexes 	
Hydrocarbons	<ul style="list-style-type: none"> • Arenes (exemplified by benzene and methylbenzene) • Influence of delocalized π electrons on structure and properties • Substitution reactions with electrophiles • Oxidation of side-chain • Hydrocarbons as fuels 	
Hydroxy compounds	<ul style="list-style-type: none"> • Alcohols (exemplified by ethanol) • Formation of halogenoalkanes • Reaction with sodium oxidation; 	

	<ul style="list-style-type: none"> dehydration; esterification; acylation The tri-iodomethane Test II Phenol: Its acidity; reaction with sodium Nitration of, and bromination of, the aromatic ring 	
Carboxylic acids and derivatives	<ul style="list-style-type: none"> Carboxylic acids (exemplified by ethanoic acid and benzoic acid) Formation from primary alcohols and nitriles Salt, ester and acyl chloride formation II Acyl chlorides (exemplified by ethanoyl chloride) Ease of hydrolysis compared with alkyl and aryl chlorides Reaction with alcohols, phenols and primary amines III Esters (exemplified by ethyl ethanoate and phenyl benzoate) Formation from carboxylic acids and from acyl chlorides Hydrolysis (under acidic and under basic conditions) Uses of esters 	

Quarter Three		
Unit title	Content	Chapter (Textbook)
Nitrogen compounds	<ul style="list-style-type: none"> Primary amines (exemplified by ethylamine and phenylamine) Formation Salt formation Other reactions of phenylamine Amides (exemplified by ethanamide) Formation from acyl chlorides Hydrolysis Reduction Amino acids (exemplified by aminoethanoic acid) Acid and base properties Zwitterion formation Proteins Structure, based on the peptide linkage Hydrolysis of proteins 	Chemistry Course book Longman A Level Chemistry
Polymerisation	<ul style="list-style-type: none"> Addition polymerization Condensation polymerisation 	
The chemistry of life	<ul style="list-style-type: none"> Protein chemistry Genetic information Energy Metals in biological systems 	
Applications of analytical chemistry	<ul style="list-style-type: none"> Methods of detection and analysis Applications in chemistry and society 	
Design and materials	<ul style="list-style-type: none"> Medicinal chemistry and drug delivery Properties of polymers Nanotechnology Environment and energy 	

Computer Science

Quarter One		
Unit Title	Content	Chapter (Textbook)
Data representation Communication and Internet Technologies	<ul style="list-style-type: none"> • User-defined data types • File organisation and access • Real numbers and normalised floating-point representation • Protocols • Circuit switching, packet switching and routers • Local Area Networks (LAN) 	Cambridge International AS and A Level Computing Coursebook by Chris Leadbetter, Roger Blackford, Tony Piper. Cambridge International AS and A Level Computer Science Coursebook by Tony Piper
Computational thinking and problem-solving	<ul style="list-style-type: none"> • Abstraction • Algorithms • Abstract Data Types (ADT) • Recursion 	

Quarter Two		
Unit title	Content	Chapter (Textbook)
Hardware Monitoring and control systems	<ul style="list-style-type: none"> • Logic gates and circuit design • Boolean algebra • Karnaugh Maps • Flip-flops • RISC processors • Parallel processing • Overview of monitoring and control systems • Bit manipulation to monitor and control devices 	Cambridge International AS and A Level Computing Coursebook by Chris Leadbetter, Roger Blackford, Tony Piper. Cambridge International AS and A Level Computer Science Coursebook by Tony Piper
Algorithm design methods	<ul style="list-style-type: none"> • Decision tables • Jackson Structured Programming (JSP) • State-transition diagrams 	

Quarter Three		
Unit title	Content	Chapter (Textbook)
System software Security	<ul style="list-style-type: none"> • Purposes of an operating system (OS) • Virtual machine • Translation software • Asymmetric keys and encryption methods • Digital signatures and digital certificates • Encryption protocols • Malware 	Cambridge International AS and A Level Computing Coursebook by Chris Leadbetter, Roger Blackford, Tony Piper. Cambridge International AS and A Level Computer Science Coursebook by Tony Piper
Further programming	<ul style="list-style-type: none"> • Programming paradigms • Low-level programming • Imperative programming • Object-oriented programming • Declarative programming • File processing • Exception handling • Use of development tools / programming environments 	

Economics

Quarter One		
Unit title	Content	Chapter (Textbook)
Basic economic ideas and resource allocation	<ul style="list-style-type: none"> • Basic economic ideas and resource allocation <ul style="list-style-type: none"> ○ Efficient resource allocation ○ Externalities and market failure ○ Social costs and benefits; cost-benefit analysis • The price system and the micro economy <ul style="list-style-type: none"> ○ Law of diminishing marginal utility ○ Indifference curves and budget lines ○ Types of cost, revenue and profit, short-run and long-run production ○ Different market structures ○ Growth and survival of firms ○ Differing objectives of a firm 	<p>Reading: Cambridge International AS and A Level Economics Coursebook with CD-ROM By Colin Bamford, Susan Grant</p> <p>Units-6-7</p>

Quarter Two		
Unit title	Content	Chapter (Textbook)
Government microeconomic intervention	<ul style="list-style-type: none"> • Policies to achieve efficient resource allocation • Equity and policies towards income and wealth redistribution • Labour market forces and government intervention • Government failure in microeconomic intervention 	<p>Reading: Cambridge International AS and A Level Economics Coursebook with CD-ROM By Colin Bamford, Susan Grant</p> <p>Units-8</p>

Quarter Three		
Unit title	Content	Chapter (Textbook)
The macro economy & macro intervention	<ul style="list-style-type: none"> • Economic growth, economic development and sustainability • National Income statistics • Classification of countries • Employment/unemployment • The circular flow of income • Money supply (theory) • Keynesian and Monetarist schools • The demand for money and interest rate determination • Policies towards developing economies; policies of trade and aid • Government macro intervention 	<p>Reading: Cambridge International AS and A Level Economics Coursebook with CD-ROM By Colin Bamford, Susan Grant</p> <p>Units-9-10</p>

Reading: Cambridge International AS and A Level Economics Coursebook with CD-ROM By Colin Bamford, Susan Grant

Law

Quarter One		
Unit title	Content	Chapter (Textbook)
Paper-3	What is an offer? What is an ITT? Some example of ITT, communication of an offer, duration of an offer, termination of an offer, what is an Acceptance, communication of an Acceptance and binding contract.	Offer & Acceptance
	Introduction, different types of agreements, common law decision of whether the agreement is legally bound or not.	Intention to create Legal Relation
	Introduction, different principles of the consideration, promissory estoppel.	Consideration
	Introduction, what is terms of the contract? Importance of the terms, terms implied by statute, Sale of Goods Act 1979, Unfair Contract Terms Act 1977 etc.	Terms of the Contract (Exclusion Clauses)

Quarter Two		
Unit title	Content	Chapter (Textbook)
Paper-3	Introduction, what is Misrepresentation? Criteria for Misrepresentation, remedies for Misrepresentation and Misrepresentation Act 1967	Misrepresentation
Paper-4	Introduction, different Principles of Negligence, who is an occupier? Occupiers Liability Act 1954 and 1984.	Negligence & Occupiers' Liability
	Introduction, what is Nuisance? Criteria of Nuisance, conclusion.	Private Nuisance

Quarter Three		
Unit title	Content	Chapter (Textbook)
Paper-4	Introduction Principles of Trespass Conclusion.	Trespass
	Introduction, different types of remedies, conclusion.	Remedies
	Introduction, what is the duty of care, to whom the duty of care is owed? Conclusion.	Duty of Care
	Introductions, types of causation, break the chain of causation, problems with the causation, Conclusion.	Causation

Recommended reference books:

1. Contract Law, Ewan Mckendrick, 2015, London, 10th Edition
2. Text book on Contract Law, Jill Poole, 2014, 12th Edition
3. Tort, Paula Gilikor and Silas Beekwith, Sweet & Maxwell, 2014, 5th Edition.
4. Street on Torts, John Murphy, 2015, 14th Edition

Physics

Textbooks:

- Cambridge International As and A level Physics Coursebook, David Sang, Graham Jones 2nd Edition
- International A/As level Physics, Chris Mee, Mike Crundell

Quarter One		
Unit title	Content	Chapter (Textbook)
Physical quantities and units	The Avogadro constant	Teacher handout
Measurement techniques	Measurements	Teacher handout
Motion in a circle	<ul style="list-style-type: none"> • Kinematics of uniform circular motion • Centripetal acceleration and centripetal force 	Chapter 17 (Coursebook)
Gravitational fields	<ul style="list-style-type: none"> • Gravitational field • Gravitational force between point masses • Gravitational field of a point mass • Gravitational potential 	Chapter 18 (Coursebook)
Ideal gases	<ul style="list-style-type: none"> • Equation of state • Kinetic theory of gases • Kinetic energy of a molecule 	Chapter 22 (Coursebook)
Temperature	<ul style="list-style-type: none"> • Thermal equilibrium • Temperature scales • Practical thermometers 	Chapter 21 (Coursebook)
Thermal properties of materials	<ul style="list-style-type: none"> • Specific heat capacity and specific latent heat • Internal energy and the first law of thermodynamics 	Chapter 21 (Coursebook)
Oscillations	<ul style="list-style-type: none"> • Simple harmonic oscillations • Energy in simple harmonic motion • Damped and forced oscillations, resonance 	Chapter 19 (Coursebook)
Waves	<ul style="list-style-type: none"> • Production and use of ultrasound in diagnosis 	Chapter 32 (Coursebook)

Quarter Two		
Unit title	Content	Chapter (Textbook)
Electric fields	<ul style="list-style-type: none"> • Electric forces between point charges • Electric field of a point charge • Electric potential 	Chapter 23 (Coursebook)
Capacitance	<ul style="list-style-type: none"> • Capacitors and capacitance • Energy stored in a capacitor 	Chapter 24 (Coursebook)
Current of electricity	Sensing devices	Chapter 25 (Coursebook)
D.C. circuits	Potential dividers	Chapter 12 (Coursebook)
Magnetic fields	<ul style="list-style-type: none"> • Concept of magnetic field • Force on a current carrying conductor • Force on a moving charge • Magnetic fields due to currents • Nuclear magnetic resonance imaging 	Chapter 26 (Coursebook)
Electromagnetic induction	Laws of electromagnetic induction	Chapter 28 (Coursebook)
Alternating currents	<ul style="list-style-type: none"> • Characteristics of alternating currents • The transformer • Transmission of electrical energy • Rectification 	Chapter 29 (Coursebook)
Paper-5	Planning and designing basic	

Quarter Three		
Unit title	Content	Chapter (Textbook)
Communication	<ul style="list-style-type: none"> • Communication channels • Modulation • Digital communication • Relative merits of channels of communication • Attenuation 	Chapter 20 (Coursebook)
Electronics	<ul style="list-style-type: none"> • The ideal operational amplifier • Operational amplifier circuits • Output devices 	Chapter 25 (Coursebook)
Quantum physics	<ul style="list-style-type: none"> • Energy of a photon • Photoelectric emission of electrons • Wave-particle duality • Energy levels in atoms and line spectra • Band theory • Production and use of X-rays 	Chapter 30 (Coursebook)
Particle and nuclear physics	<ul style="list-style-type: none"> • Mass defect and nuclear binding energy 	Chapter 31 (Coursebook)
Paper-5	<ul style="list-style-type: none"> • Planning and designing advance 	

Pure Mathematics 3

Textbooks:

- Advanced level Mathematics Pure Mathematics 3 By Hugh Neill and Douglas Quadling

Quarter One		
Unit title	Content	Chapter (Textbook)
Polynomials	Remainder & Factor theorem	Chapter 1
The modulus function	<ul style="list-style-type: none"> Graphs of modulus Equations solving of modulus 	Chapter 2
Exponential & logarithm functions	<ul style="list-style-type: none"> Exponential growth & decay Properties of logarithmic functions 	Chapter 3
Differentiating Exponential & logarithm functions	<ul style="list-style-type: none"> Derivative of b^x, e^x & natural log Reciprocal integral 	Chapter 4
Trigonometry	<ul style="list-style-type: none"> Addition & double angle formulae The form $a \sin x + b \cos x$ 	Chapter 5
Differentiating trigonometric function	<ul style="list-style-type: none"> Inequalities & limits Chain rule Integrate trigonometric functions 	Chapter 6
Differentiating products	<ul style="list-style-type: none"> Sum & products rule Differentiating quotients 	Chapter 7
Solving equations numerically	<ul style="list-style-type: none"> Sign change rule Decimal search Iteration & convergent iteration 	Chapter 8
Trapezium Rule	<ul style="list-style-type: none"> Estimate value of definite integral Overestimate & underestimate 	Chapter 9
Parametric Equations	<ul style="list-style-type: none"> Parametric to Cartesian conversion Properties of curve 	Chapter 10
Curves defined implicitly	<ul style="list-style-type: none"> Equations of curve & circle with gradient 	Chapter 11

Quarter Two		
Unit title	Content	Chapter (Textbook)
Vectors: line in two & three Dimensions	<ul style="list-style-type: none"> Equations in 2 & 3 dimensions Distance between two points 	Chapter 12
Vectors: planes in three Dimensions	<ul style="list-style-type: none"> Cartesian equations Common perpendicular 	Chapter 13
Rational Functions	<ul style="list-style-type: none"> Types of Partial fractions 	Chapter 15
Complex numbers	<ul style="list-style-type: none"> Operation with complex numbers Geometrical representation Modulus 	Chapter 16
Complex numbers In polar form	<ul style="list-style-type: none"> Modulus & arguments Spiral enlargement 	Chapter 17
Integration	<ul style="list-style-type: none"> Direct & reverse substitution Integration by parts 	Chapter 18
Differential Equations	<ul style="list-style-type: none"> Forming & solving equations Separable variables 	Chapter 19

Mechanics 2

Textbooks:

- Advanced level Mathematics Mechanics 2 By Douglas Quadling

Quarter One		
Unit title	Content	Chapter (Textbook)
The Motion of projectiles	<ul style="list-style-type: none"> • Velocity as vector • General formulae 	Chapter 1
Moments	<ul style="list-style-type: none"> • Centers of mass • Moment of force • Forces in different directions 	Chapter 2
Center of mass	<ul style="list-style-type: none"> • One & two dimensional objects • Hanging & balancing 	Chapter 3
Rigid objects in equilibrium	<ul style="list-style-type: none"> • Equilibrium equations • Sliding & toppling • Line of action 	Chapter 4
Elastic strings and springs	<ul style="list-style-type: none"> • Springs & rods • stretching & compressing • elastic potential energy 	Chapter 5

Quarter Two		
Unit title	Content	Chapter (Textbook)
Motion round the circle	<ul style="list-style-type: none"> • angular speed • 2 & 3Dimensional problem 	Chapter 6
Geometrical Methods	<ul style="list-style-type: none"> • 3 forces in equilibrium • Angle of friction 	Chapter 7
Center of mass of special shapes	<ul style="list-style-type: none"> • Shapes of different uniform objects • Center of mass 	Chapter 8
Linear motions with variable forces	<ul style="list-style-type: none"> • Equations of motions • Work done 	Chapter 9