SYLLABUS 2079   C. Mathematics   Class: 10

First Terminal Examination

Unit	Topics	Per iods	Teaching Methods	Teaching Materials	Evaluation techniques and tools	Rem arks
1	**Set** * Word problems related to two or three sets and their Venn-diagram.	6	* question/answer * demonstration * practical method	Two or three ring and wooden block numbers are required.	* oral test * exam * practical * project work /field work	
2	**Arithmetic** * Compound Interest (Maximum 2 years for C.I half yearly 3 for yearly) * Population growth and compound depreciation (compounded annually)	10	- question/answer - Research - visit bank/village - Analysis and synthesis	Sample of bank overdraft, loan agreement paper etc	* oral test * exam * practical * project work /field work	
3	**Menstruation** * Area of triangle (Right, Isosceles, Equilaterals and scalene)	4	* Demonstration * Inductive and deductive * Analysis	Hard cover paper, bamboo, etc are required.	* oral test * exam * practical * project work /field work	
4.	**Algebra** * H.C.F and L.C.M (maximum three $\exp^n$) * Surd (four basic operations)	8	* question/answer * Research * problem solving		* oral test * exam * practical * project work /field work	
5.	**Geometry** * Median, Altitude, Perpendicular bisector of triangles. * Diagonal divides the parallelogram into two equal halves. (Theorem 1) * Parallelograms standing on same base and between same parallels are equal in area. (Theorem 2)	4	* Demonstration * practical * Questions/answer * Research	Wooden or paper triangle or quadrilaterals etc are required.	* oral test * exam * practical * project work /field work	
6.	**Trigonometry** Area of triangle and quadrilateral by using trigonometric formula Area of triangle $= \frac{1}{2}absin\theta$ Area of parallelogram $= absin\theta$	4	*questions/answers		* oral test * exam * practical * project work /field work	
7	**Statistics** * Arithmetic mean	3	* Analysis and synthesis * Problem solving * Demonstration		* Oral test * Exam * Practical * Project work/field work	
Revision		3	Teachers can revise the lessons, observe the copies, deal with difficult problems faced by students			
Total working days From Jestha 3 to Ashad 21, 2079		42				

Subject: C. Mathematics   Full Marks: 100   **Time: 3:00 hrs.**

Specification Grid

Area	Content	K	C	A	HA	T.N Q	Total Marks	Total Time
Sets	Use of Venn-diagram		1	1		2	6	11 min
Arithmetic	* Compound Interest (maximum 2 yrs for CI half yearly and 3 for yearly) * Population growth and compound depreciation (Compounded annually)	1	3	1	1	6	16	40min
Menstruation	* Area of triangles and quadrilaterals	1	3	2	1	7	20	36 min
Algebra	* HCF and LCM * Surds	1	4	2	1	8	22	40 min
Geometry	* Area of triangle and parallelogram	2	4	3	1	10	27	48 min
Statistic	Arithmetic mean		1	1		2	6	
Trigonometry	Area of triangle and quadrilateral by using trigonometric formula	1	1			2	3	5 min
Probability								
Total		6	17	10	4	37	100	180min

Mid-Terminal Examination

Unit	Topics	Per	Teaching Methods	Teaching Materials	Evaluation techniques and tools	R
1	**Set**					
2	**Arithmetic** Taxation and money exchange	4	- question/answer - Research - visit bank/village - Analysis and synthesis	Sample of VAT bills, list of money buying and selling rate from newspaper	* oral test * exam * practical * project work /field work	
3	**Mensuration** * Word problems related to triangle/quad. *Lateral surface area, total surface area and volume of cylinder, sphere hemisphere, cone and solid made by these. (Max. two combine fig. only).	8	* Demonstration * Inductive and deductive * Analysis	Hard paper, bamboo, pipe, ball, Ice cream cone etc.	* oral test * exam * practical * project work /field work	
4.	**Algebra** * Equation involving surds *Problems of indices in the form of quadratic equation	7	* question/answer * Research * problem solving		* oral test * exam * practical * project work /field work	
5.	**Geometry** * Area of triangle is half to the area of parallelogram standing on same base and between same parallels. * Triangles standing on same base and between same parallels are equal in areas. * Central angle made by equal arcs of a circle are equal and converse (only concept) * Arcs made by equal chords of a circle are equal and its converse (only concept) * Central angle is twice the inscribed angle on the same arc of the circle. (Theorem + Verification) * The angle in semi-circle is at right angle. (Theorem+ Verification) * Angles standing on the same arc of a circle are equal. (Theorem+ Verification)	17	* Demonstration * practical * Questions/answer * Research	* Geo-board and rubber etc are required. * Circular discs * Circular paper discs with chords, sectors, center and inscribed angle.	* oral test * exam * practical * project work /field work	
6.	**Statistics** * Median and quartiles of grouped data with their respective curves	6	* Analysis and synthesis * problem solving * Demonstration		* oral test * exam * practical * project work/field work	
7.	**Trigonometry** * Height and distance	6		Graph on inverse variation		
8.	**Probability**					
	Revisions	4	Teachers can revise the lessons, observe the copies, deal with difficult problems faced by students			
	Total working days From Shrawan 1 to Bhadra 31	52				

Subject: C. Mathematics   **Full Marks: 100**
Time: 3:00 hrs.

Specification Grid

Area	Content/ cognitive domain	K	C	A	HA	TnQ	Total Marks	Total Time
Sets	Use of Venn-diagram			1		1	4	7 min
Arithmetic	* compound interest and population growth or depreciation *Problems related to profit and loss (including marked price, discount and value added tax) *Tax and money exchange	1	2	2	1	6	18	32 min
Menstruation	* Area of triangles * Area and volume of cylinder, sphere, cone, hemisphere and solid made by these.	1	3	1	1	6	16	29 min
Algebra	* HCF/LCM * Surd/equation involving surds	1	5	2	1	9	24	43 min
Geometry	* Area of triangle and quadrilateral * Circle theorem	2	4	2	1	9	23	42 min
Statistic	* Mean, median and quartiles with their respective curves	1	2	1		4	9	16 min
Trigonometry	Height and distance Area of triangle and quadrilateral by using trigonometric formula		1	1		2	6	11 min
Probability								
Total		6	17	10	4	37	100	180 min

Pre-Qualifying Examination

Unit	Topics	Periods	Teaching Methods	Teaching Materials	Evaluation techniques and tools	Remarks
1	**Set**					
2	**Arithmetic**					
3	**Mensuration** * Total surface area and volume of prism and pyramid. * CSA/TSA/Volume of square based pyramid and equilateral based pyramid	11	* Demonstration * Inductive and deductive * Analysis	Hard paper or wood material, shape of prism and square etc are required.	* oral test * exam * practical * project work /field work	
4.	**Algebra** * Simplify algebraic fraction * Indices * Word Problems related to the simultaneous equation on two variables and quadratic equation	11	* question/answer * Research * problem solving		* oral test * exam * practical * project work /field work	
5.	**Geometry** * The sum of the opposite angles of a cyclic quadrilateral is equal two right angles. (Theorem+ Verification) * The radius from centre to the tangent at the point of contact is perpendicular to the tangent line. (only concept+ Verification) * The lengths of two tangents to a circle at the point of contact form the same external point are equal. (only concept+ verification) * The angles formed by a tangent to a circle and a chord drawn from the point at contact are equal to respective angles in the alternate segment.(problem only numbers) * Construction of triangles and quadrilaterals having equal areas.	14	* Analysis * Practical * Demonstration	Circle with tangent lines and model	* oral test * exam * practical * project work /field work	
6.	**Statistics**					
7.	**Trigonometry**					
8.	**Probability** * Addition law and multiplicative law of probability for mutually exclusive events. * Probability tree diagram (Two steps if three events are given and three steps if two events are given) * Problems related to the probability of simple dependent events.	8	* questions/ answer * demonstration * practical * Analysis	Dice, playing cards and coins etc are required.	* oral test * exam * practical * project work /field work	
	Revisions	4	Teachers can revise the lessons, observe the copies, deal with difficult problems faced by students			
	Total working days From Asoj 24 to Poush 15	48				

Subject: C. Mathematics
Time: 3:00 hrs.

Full Marks: 100
Pass Marks: 40

Specification Grid

Area	Content	K	C	A	HA	Tn Q	Total Marks	Time
Sets	Use of Venn-diagram			1		1	4	7 min
Arithmetic	*Profit and loss * Population growth and compound depreciation * Compound interest *Tax and money exchange	1	2	1	1	5	14	29 min
Menstruation	* Area of triangle and verbal problems, total surface area and volume of triangular prism * Total surface area and volume of cylinder, sphere, hemisphere cone and combined solid figure * Total surface area and volume of pyramid	1	3	1	1	6	16	25 min
Algebra	* HCF/LCM * Simplification of Algebraic fraction * Equation involving indices * Roots and surds/Radical equation * Verbal problems on simultaneous equation and quadratic equations	1	5	2	1	9	24	43 min
Geometry	* Area of triangle and quadrilateral * Circle theorems on circle and their application * Tangent * Construction of triangle and quadrilateral with equal area. * Experimental verification related circle theorem	2	3	3	1	9	25	43 min
Statistic	* Mean, median and quartile of group data	1	1	1		3	7	15 min
Trigonometry	* Area of triangle * Height and distance		1	1		2	6	11 min
Probability	* Additive law of mutually exclusive events * Multiplicative law for independent events * Problems on dependent event and probability tree diagrams		2			2	4	7 min
Total		6	17	10	4	37	100	180min

Process of learning teaching

In the process of teaching mathematics the teacher needs to emphasize more on the implementation of mathematical knowledge , skill in their homes, neighborhood, school and daily lives discussing the exercises given in the text books rather than on his/her presentation in classroom . The mathematics teacher needs to help students how to analyses their mistakes/errors and to follow remedial measures .The following teaching methods should be adopted to develop learning teaching mathematics.

•Method of question/ answer and discussion.　　•Method of demonstration.　•Problem solving method.

•Research method.　　　　　　　•Practical method

•Inductive and deductive method.　　　•Analysis and synthesis method.

Process of Evaluation

In the process of teaching compulsory mathematics, students' evaluation should be done keeping the following objective in to examine.

• Whether or not the students could achieve assigned.

• To examine whether or not the students have learnt the basic knowledge (entering behavior) for new mathematics chapters.

• To examine how effectively the teacher is able to teach.

• To examine the standard of students about their achievement.

The following evaluation methodology should be adopted to make constructive evaluation of students.

•To observe their change and improvement or their activities.

• Participation of students on class work and other activities.

• To use mathematical skills in practice.

• Written work (like class work and home work) and practical work.

The objective of student's evaluation is to ascertain their achievement. It helps to improve then by identifying their difficulty level. Therefore, should introduce reformative measures by taking students' evaluation and examination result as the basis. The teacher needs to construct question paper strictly on the basis of specification grid for conducting the written exam for grade 10. The SEE examination should be held as ascertained following the specification grid.