**First Terminal Examination 2082**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Unit** | **Topics** | **E**  **TP** | **Teaching Methods** | **Teaching Materials** | **Evaluation techniques & tools** | **Rem** |
| 1 | **Set**   * Operations on set (Union, Intersection, Difference, complement) | 8 | * question/ answer * Demonstration * Analysis/ synthesis | Two or three ring and wooden block numbers. | \* oral test  \* Written Exam  \* practical  \* project work /field work |  |
| 2 | **Arithmetic**   * Commission ,bonus and Dividend * Taxation | 9 | \* Q\A discussion visit shop\ market/Tax office and related field if possible | Tax related bills | \* oral test  \* Written Exam  \* practical  \* project work/field work |  |
| 3 | **Mensuration**   * Area of Plane figure * Application of area in terms of Measurement scale in local contest( Bigha, Kattha, Dhur, Ropani, Aana, paisa and Daam) * Problems Related to find area and perimeter of triangular and quadrilateral shape of field. | 10 | \* Develop formula for the area of scalene triangle  \* Use the relation of meter, square meter and local measurement like Bigha, Kattha, Dhur, Ropani, Aana, paisa and Daam etc to find area of triangular and quadrilateral field  \* Use measuring tape and find the area of square shape and rectangular shape, quadrilateral shape, triangular shape field and find their area.  \* Practical  \* Q\A discussion | Measurement tape, Scale etc. | \* oral test  \* Written Exam  \* practical  \* project work/field work |  |
| 4. | **Algebra**   * Sequence and series * Introduction of sequence and general term * Sigma /Summation and use of symbols * Arithmetic sequence and series * Factorization (Review of the form a2-b2, a3+b3, a3-b3, ax2+bx+c), a4+a2b2+b4 | 10 | \* Q\A discussion  \* Demonstration like x2+3x+2 =(x+2)(x+1) etc. | Sheet of hard paper and scissors | \* oral test  \* Written Exam  \* practical  \* project work/field work |  |
| 5. | **Geometry Triangles**   * Verification of properties of triangle ( experimentally) * The sum of three angles of a triangle. * Relation of external angle and the interior angle which are non- adjacent angles. * Sum of two sides of a triangle is always greater then third side ( Experimental verification only) * Relation of angle opposite to greatest and smallest side. (Experimental verification only) * Shortest distance form a point to a line is perpendicular to the line ( only concept) * Geometrical problems related to above facts. | 10 | \* practical  \* question/Answer  \* Research  \* Demonstration  \* paper folding  \* showing triangular shape in house temple playground etc  \* problem solving | Wooden or paper triangle or quadrilaterals etc are required. | \* oral test  \* Written Exam  \* practical  \* project work/field work |  |
| 6 | **Trigonometry:**   * Concept of trigonometry ratios | 2 |  |  |  |  |
| 7 | **Statistics**   * Collection of data, frequency table, histogram, ogives | 6 |  |  |  |  |
| 8. | Probability |  |  |  |  |  |
|  | **Total** | 55 |  | | | |

**First term 2082 Full Marks: 75 Time: 3:00 hrs.**

**Specification Grid**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Area** | **Content** | **No of items** | | | | **T.N**  **Items** | **Total**  **Quetions** | **Total Marks** | **Total Time** |
| **K** | **C** | **A** | **HA** |
| Sets | * Operations on set (Union, Intersection, Difference, complement) | **1** | **1** | **1** | **1** | 4 | 1 | 6 | 14 min |
| Arithmetic | * Commission ,bonus, Dividend * Taxation | **2** | **2** | **3** | **2** | **9** | **3** | **14** | **34 min** |
| Menstruation | * Area of scalene triangle, Problems related to area of Triangles * Measurement scale in local contest( Bigha, Kattha, Dhur,Ropani, Aana, paisa and Daam) * Problems Related to find area and perimeter of triangular and quadrilateral shape of field. | **2** | **3** | **3** | **2** | **10** | **3** | **15** | **36 min** |
| Algebra | * Sequence and series * Introduction of sequence and general term * Sigma /Summation and use of symbols * Arithmetic sequence and series * Factorization (Review of the form a2-b2, a3+b3, a3-b3, ax2+bx+c | **2** | **2** | **3** | **2** | **9** | **3** | **15** | **36 min** |
| Geometry | * Verification of properties of triangle ( experimentally) * The sum of three angles of a triangle. * Relation of external angle and the interior angle which are non- adjacent angles. * Sum of two sides of a triangle is always greater then third side ( Experimental verification only) * Relation of angle opposite to greatest and smallest side (Experimental verification only) * Geometrical problems related to above facts. | **2** | **3** | **2** | **2** | **9** | **3** | **15** | **36 min** |
| Statistics | * Collection and classification of data * frequency table, histogram, frequency polygon and ogive | **1** | **1** | **1** | **1** | **4** | **1** | **6** | **14 min** |
| Trigonometry | **Concept of trigonometry ratios** | **1** | **1** | **1** | **1** | **4** | **1** | **4** | **10 min** |
| Probability |  |  |  |  |  |  |  |  |  |
| **Total** |  | **11** | **13** | **14** | **11** | **49** | **16** | **75** | **180min** |

**Note: The questions will be asked by joining the very short, short and long questions. Thus, number of questions may vary according to the structure of the question pattern.**

**Mid-Terminal Examination 2082**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Unit** | **Topics** | **Per**  **Iods** | **Teaching Methods** | **Teaching Materials** | **Evaluation techniques & tools** | **Rem.** |
| 1 | **Set**   * Cardinality of sets (solution of word problems related to two sets and their Venn- * diagram) | 5 |  |  |  |  |
| 2 | **Arithmetic**   * Home arithmetic(bill of electricity, water, telephone, mobile, taxi fare etc) | 10 | \* Q/A discussion  \* Research  \* Demonstration  \* visit related field if possible. | Bill of related field | \* oral test  \* Written Exam  \* practical  \* project work  /field work |  |
| 3 | **Mensuration**   * Area of four walls, ceiling, floor of room. * Cost estimation. * Total cost | 10 | \* Analysis and synthesis  \* Research  \* Q/A discussion  \* Demonstration  \* Problem solving  \* paper folding | Measurement tape, scale etc | \* oral test  \* Written Exam  \* practical  \* project work  /field work |  |
| 4. | **Algebra**   * Sequence and Series (geometric) * H.C.F. and L.C.M. of algebraic expression like   a2-b2, a3+b3, a3-b3, ax2+bx+c,  a4+a2b2+b4etc up to three algebraic expressions. | 12 | \* Q/A discussion  \* Demonstration |  | \* oral test  \* Written Exam  \* practical  \* project work  /field work |  |
| 5. | **Geometry**   * Base angles of isosceles triangle and their relations, and its converse. * The bisector of the vertical angle of an isosceles triangle is perpendicular bisector of base and its converse * Similar Triangles (Relations between corresponding sides and angles) | 8 | \* Demonstration  \* Practical  \* Analysis and synthesis  \* Research | Triangular shapes of different size but similar are required | \* oral test  \* Written Exam  \* practical  \* project work  /field work |  |
| 6. | **Trigonometry**   * Table of 00 to 900 and trigonometric calculations | 4 |  |  |  |  |
| 7. | **Statistics**  \*Arithmetic mean (individual and discrete data), medians | 6 | Use statistical data available in school, class room and field work |  | \* oral test  \* Written Exam  \* practical  \* project work  /field work |  |
| 8. | **Probability** |  |  |  |  |  |
|  | **Total ETP** | 60 |  | | | |

**Mid-term 2082** Full Marks: 75 **Time: 3:00 hrs.**

**Specification Grid**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Area** | **Content** | **No of items** | | | | **Total Items** | **Total Question** | **Total**  **Marks** | **Total Time** |
| **K** | **C** | **A** | **HA** |
| Sets | * Operations on set * Cardinality of set * From tt | **1** | **1** | **1** | **1** | **4** | **1** | **6** | **14 min** |
| Arithmetic | Home arithmetic(bill of electricity, water, telephone, mobile, taxi etc)  \* from the chapters from first term | **2** | **2** | **3** | **2** | **9** | **3** | **14** | **34 min** |
| Menstruation | \* Area of four walls, ceiling, floor of room.  \* Cost estimation.  \*From the chapters from first terms | **2** | **3** | **3** | **2** | **10** | **3** | **15** | **36 min** |
| Algebra | * Sequence and series * Factorization * H.C.F. and L.C.M. of algebraic expression like , a2-b2, a3+b3,   a3-b3, ax2+bx+c, a4+a2b2+b4etc up to three algebraic expressions. | **2** | **2** | **3** | **2** | **9** | **3** | **15** | **36 min** |
| Geometry | * Shortest distance form a point to a line is perpendicular to the line ( only concept) * Base angles of isosceles triangle and their relations, and its converse. * The bisector of the vertical angle of an isosceles triangle is perpendicular bisector of base and its converse * Similar Triangles (Relations between corresponding sides and angles) * From the topics from first term | **2** | **3** | **2** | **2** | **9** | **3** | **15** | **36 min** |
| Statistics | * Collection and classification of data * frequency table, histogram, frequency polygon and ogive * Arithmetic mean and medians | **1** | **1** | **1** | **1** | **4** | **1** | **6** | **14 min** |
| Trigonometry | * Trigonometry Ratio * Table of 00 to 900 and trigonometric calculations | **1** | **1** | **1** | **1** | **4** | **1** | **4** | **10 min** |
| Probability |  |  |  |  |  |  |  |  |  |
|  | **Total** | **11** | **13** | **14** | **11** | **49** | **16** | **75** | **180min** |

**Note: The questions will be asked by joining the very short, short and long questions. Thus, number of questions may vary according to the structure of the question pattern.**

**Second Terminal Examination 2082**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Unit** | **Topics** | **Per**  **Iods** | **Teaching Methods** | **Teaching Materials** | **Evaluation techniques & tools** | **Remarks** |
| 1 | **Set** |  |  |  |  |  |
| 2 | **Arithmetic** |  |  |  |  |  |
| 3 | **Mensuration**   * Surface area and volume of Prism * Area and volume of Cylinder and Sphere | 8 |  |  |  |  |
| 4. | **Algebra**   * Solution of simultaneous equations. ( substitution method, elimination method) * verbal problems having two unknowns. | 8 | \* Q\A discussion \* demonstration \* problem solving |  | \* oral test  \* Written Exam  \* practical  \* project work  /field work |  |
| 5. | **Geometry**   * Quadrilaterals: Properties of parallelogram (theoretically only) * The St. lines joining the end points of same sides of equal and parallel lines are also equal and parallel * Opposite angles and sides of parallelogram are equal * Diagonals of parallelogram bisect each other * Converse of above theorems * Problems related to above theorems. * problem related to quadrilateral | 16 | \* Demonstration  \* Practical  \* Analysis and synthesis  \* Research | Paper or wooden shape of parallelogram etc are required.  Geo board  Geometry box | \* oral test  \* Written Exam  \* practical  \* project work  /field work |  |
| 6. | **Trigonometry** |  |  |  |  |  |
| 7 | **Statistics**  Quartiles and mode | 5 |  |  |  |  |
| 8. | **Probability**  \* Definition of basic terms, probability scale and use of probability  \* Theoretical and empirical probability  \* Probability of an experiment and an event | 6 | \* Q\A discussion  \* demonstration \* research | Dice, spinners, coin, playing cards, numbered cards etc | \* oral test  \* Written Exam  \* practical  \* project work  /field work |  |
|  | **Revision** | 3 | Teachers can revise the lessons, observe the copies, deal with difficult problems faced by students | | | |

**Second term 2082** Subject: C. Mathematics Full Marks: 75**Time: 3:00 hrs.**

**Specification Grid**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Area | Content | No of items | | | | Total Items | Total Question | Total  Marks | Time |
| K | C | A | HA |
| Sets | * Operations on set * Cardinality of set | 1 | 1 | 1 | 1 | 4 | 1 | 6 | 14 |
| Arithmetic | Review from first and mid term | 2 | 2 | 3 | 2 | 9 | 3 | 13 | 31 |
| Menstruation | * Surface area and volume of Prism * Area and volume of Cylinder and Sphere * Review from first and mid term | 2 | 2 | 2 | 2 | 8 | 3 | 13 | 31 |
| Algebra | * Solution of simultaneous equations. (substitution method, elimination method) * verbal problems having two unknown variable | 2 | 2 | 2 | 2 | 8 | 3 | 15 | 36 |
| Geometry | * Properties of parallelogram (theoretically only) * The st. lines joining the end points of same sides of equal and parallel lines are also equal and parallel * Opposite angles and sides of parallelogram are equal * Diagonals of parallelogram bisect each other * Converse of above theorems * Problems related to above theorems. * problem related to quadrilateral | 2 | 2 | 2 | 2 | 8 | 3 | 13 | 31 min |
| Statistics Probability | * Quartiles,Mode * Definition of basic terms, probability scale and use of probability * Theoretical and empirical probability * Probability of an experiment and an event | 2 | 2 | 2 | 2 | 8 | 2 | 11 | 26 min |
| Trigonometry |  | 1 | 1 | 1 | 1 | 4 | 1 | 4 |  |
| **Total** |  | **11** | **11** | **13** | **12** | **49** | **16** | **75** | **180 min** |

**Note: The questions will be asked by joining the very short, short and long questions. Thus, number of questions may vary according to the structure of the question pattern.**

**Annual Examination 2082**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Unit** | **Topics** | **Periods** | **Teaching Methods** | **Teaching Materials** | **Evaluation techniques & tools** | **Rem**  **arks** |
| 1 | **Set** |  |  |  |  |  |
| 2 | **Arithmetic** |  |  |  |  |  |
| 3 | **Mensuration** |  |  |  |  |  |
| 4. | **Algebra**   * Laws of indices * Simplification of indices. | 10 | \* question/  answer discussion  \* Research,  \* practical  \* demonstration |  | \* oral test  \* Written Exam  \* practical  \* project work  /field work |  |
| 5. | **Geometry**   * Construction quadrilateral, trapezium and rhombus * Circle:- Relation of chord and its perpendicular from center. * Relation of line joining the centre and mid point of chord with the chord of a circle * .Relation of centre and the perpendicular bisector of chord of circle. * Relation of equal chords and their distance from the center of circle. * Problem related to centre of circle and a chord. | 27 | \* practical and demonstration  \* Analysis and synthesis  \* Research | Geo- board and rubber are required  Circular sheet with chords and angle in them | \* oral test  \* Written Exam  \* practical  \* project work  /field work |  |
| 6. | **Trigonometry** |  |  |  |  |  |
| 7. | **Statistics** |  |  |  |  |  |
| 8. | Probability |  |  |  |  |  |
|  | **Revisions** | 10 | Teachers can revise the lessons, observe the copies, deal with difficult problems faced by students | | | |

**Specification Grid**

Full Marks: 75 **Time: 3:00 hrs.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SN | Area | Knowledge | | Understanding | | Application | | Higher ability | | Total no.of items | Total no.of question | Total marks | Total time  (min) |
| No.of item | Marks | No.of item | Marks | No.of item | Marks | No.of item | Marks |
| **1** | **Set** | **1** | **1** | **1** | **1** | **1** | **3** | **1** | **1** | **4** | **1** | **6** | **14** |
| **2** | **Arithmetic** | **2** | **2** | **2** | **3** | **3** | **5** | **2** | **3** | **9** | **3** | **13** | **31** |
| **3** | **Mensuration** | **2** | **2** | **2** | **3** | **2** | **5** | **2** | **3** | **8** | **3** | **13** | **31** |
| **4** | **Algebra** | **2** | **2** | **2** | **4** | **3** | **7** | **1** | **2** | **8** | **3** | **15** | **36** |
| **5** | **Geometry** | **2** | **2** | **2** | **3** | **2** | **5** | **2** | **3** | **8** | **3** | **13** | **31** |
| **6** | **Statistics and probability** | **2** | **2** | **2** | **3** | **2** | **4** | **2** | **2** | **8** | **2** | **11** | **27** |
| **7** | **Trigonometry** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **1** | **4** | **1** | **4** | **10** |
| **Total** | | **12** | **12** | **12** | **18** | **14** | **30** | **11** | **15** | **49** | **16** | **75** | **180** |

**Note: The questions will be asked by joining the very short, short and long questions. Thus, number of questions may vary according to the structure of the question pattern.**