



## SECONDARY LEVEL MATHEMATICS (211)

### Practical Examination (Under New Syllabus)

*Time allowed: 2½ hours*

*Maximum Marks: 15*

#### 1. Distribution of Marks:

- |   |                       |
|---|-----------------------|
| (i) Assessment of activity performed:<br>(Two activities out of given three activities)     | = 2×4 Marks = 8 Marks |
| (ii) Record Note book of activities:<br>(At least five activities from each of the section) | = 03 Marks            |
| (iii) Viva-voce, based on the activity  | = 04 Marks            |

**Total = 15 Marks**

#### 2. List of activities:

From the given list of activities in Sections A, B and C, on activity from each section may be given to the learners. Of these three activities, the learner will have to choose any two activities and perform them at practical examination centre.

##### 2.1 Section - A (Algebra)

1. Verification of the Identify  $(a+b)^2 = a^2+2ab+b^2$
2. Verification of the identify  $(a-b)^2 = a^2-2ab+b^2$
3. Verification of the identify  $(a^2-b^2) = (a+b) (a-b)$
4. Verification of the identify  $(a+b)^3 = a^3 + 3a^2+3ab^2+b^3$
5. To verify the identify  $a^3-b^3 = (a-b) (a^2+ab^2+b^2)$
6. To find H.C.F of two given numbers by division method.
7. Demonstration of the concept of Equivalent Fractions.
8. To verify that a linear equation in two variables has infinite number of solutions.
9. To find the condition for inconsistency of a system of linear equations in two variables.
10. To verify the relation between roots and coefficients of a quadratic equation.
11. To verify graphically that a quadratic polynomial can have at most two zeroes.

12. To verify that a given sequence is an A.P.
13. To find the sum of first  $n$  odd natural numbers.
14. To find the sum of first  $n$  natural numbers.
15. To find the sum of first  $n$  terms of an Arithmetic Progression.

## **2.2 Section - B (Geometry)**

1. To verify that the sum of the angles of a triangle is  $180^{\circ}$
2. To verify that the angles opposite to equal sides of a triangle are equal.
3. To verify the midpoint theorem.
4. To verify basic proportionality theorem.
5. To verify Pythagoras theorem.
6. To verify the relation between the ratio of areas of two similar triangles and their sides.
7. To demonstrate that the opposite angles of a cyclic quadrilateral are supplementary.
8. To verify that equal chords of congruent circles subtend equal angles at the centre.
9. To find the in centre of different types of triangles.

## **2.3 Section - C (Mensuration)**

1. To find the area of a trapezium.
2. To find the total surface area of a cube.
3. To find the formula for curved surface area of a cone.
4. To find the relationship among the volumes of a right circle cylinder, right circular cone and a hemisphere at same radius and same heights.
5. To draw a triangle equal in area to a parallelogram.
6. To find the area of a circle.

## **3. Material Required:**

- Sheets of paper of different colours
- Wooden boards
- Thread
- Nails, Pins and Culips
- Thermocole sheets.
- Cardboards square and triangular grids.
- Wooden and paper strips.
- Paper cutter

- Pair of scissors
- Adhesive/Fevicol
- Sketch pens
- Geometry boxes (small and bigger both)
- Graph papers (inches/cm both)
- Pencils of different colours
- Sketch pens/coloured ball point pen and markers
- Colour box
- Knobs
- Tracing papers
- Acrylic sheets
- Eraser and Sharpener
- String
- Stand with grooves so that it can keep any rod, fixed on it through pulleys
- Screws and screw driver
- Plastic sheets, plastic balls, and
- Cello tape

**Note:** Material for practical examination will be provided by the centre superintendant at the practical examination centre as per requirement of activities.



**Secondary Level**  
**SCIENCE AND TECHNOLOGY**  
**Practical Examination**  
**UNDER NEW SYLLABUS**

*Time allowed: 2 ½ hours*

*Max. Marks : 15*

**5.1. DISTRIBUTION OF MARKS**

**(i) Experiments:**

(Two experiments)

*2x4 marks = 8 marks*

**(ii) Viva based on the experiments:**

*= 3 marks*

**(iii) Record Books:** (for all sections)

*= 4 marks*

**Total = 15 marks**

**5.2 LIST OF PRACTICALS**

From the given list of practicals in Section A, B and C, one practical from each section may be given to a candidate. Out of these the candidate will have to opt for any two in the examination.

**5.2.1 Section-A (Physics)**

1. To determine the density of the material of a given solid using a spring balance and a measuring cylinder
2. To find the average speed of an individual, as one 6 walks/runs, to and fro between two points
3. To observe and compare the pressure exerted by a solid iron cuboid placed on fine sand/wheat flour while resting on its three different faces and calculate the pressure exerted in the three different cases
4. To verify the third law of motion using two spring balances
5. To determine the melting point of ice
6. To study the laws of reflection of light using a plane mirror
7. To study the change in the size, and position of image formed by a convex lens by changing the position of an object (candle) placed in front of it

8. To study the change in current through a resistor by changing potential difference across it. Determine the resistance of the resistor by plotting a graph between potential difference and current
9. To assemble a household circuit comprising two bulbs (3 volt 30 each), two turn on-off switches, a fuse and two dry cells as source of power
10. To determine the speed of a pulse propagated through a stretched string

### 5.2.2 Section-B (Chemistry)

1. To prepare an aqueous solution of common salt of a given composition
2. Separation of mixtures
3. To differentiate between a chemical and physical change in a given process
4. To test the presence of water vapours in air
5. To test the presence of carbon dioxide (CO<sub>2</sub>) in air
6. To find out the approximate percentage of oxygen in air
7. To test the acidic/basic nature of a solution with the help of pH paper
8. To find the pH of fruit/vegetables juices with the help of pH paper
9. To identify washing soda and baking soda out of the samples of two white powers
10. To carry out chemical reactions of different types

### 5.2.3 Section-C (Biology)

- 1 (i).To prepare a temporary stained mount of (i) onion peel, observe under the microscope and record observations  
(ii) To prepare a temporary stained mount of human cheek cells, observe under the microscope and record observations
2. To study and draw different types of plant and animal tissues with the help of permanent slides: plant tissues: parenchyma and sclerenchyma; animal tissues: blood, striped muscle fibres and nerve cells
3. To study the process of osmosis through a semipermeable membrane
4. To test the presence of starch in green leaves exposed to sunlight
5. To observe that oxygen is released during the process of photosynthesis
6. To show that CO<sub>2</sub> is given out during respiration
- 7 (i) To test the presence of starch and fat in given food samples  
(ii) To test the presence of adulterants in (a) milk and (b) metanil yellow in pulse
8. To estimate the level of pollution in terms of particulate matter by comparing leaf samples collected from different areas

9. To observe organisms from given pictures or specimens or in the surroundings (e.g. crop field, a garden, or a nearby pond), classify them as producers and consumers, and construct their food chains and indicate their trophic levels
10. To study external structural adaptations in any two organisms out of cockroach, fish, frog, lizard and pigeon

### **5.3 APPARATUS AND MATERIALS REQUIRED**

#### **5.3.1 For Physics Based Practicals**

##### **a) Non-Consumable Items**

Table, metre-scale, tailor tape, vessels, empty container, breaker and dropper, bob, stand, stop watch, a nail fixed in the wall, lamina, plumb line, knife edge (blade), spring balance, measuring cylinder, piece of solid, voltmeter, bulbs, battery, variable resistance, ammeter, key, turn on-off switches, dry cells, thermometers, heating arrangement, wire gauge, tripod stand, iron, constant temperature bath, plane mirror strip, drawing board, protractor, rectangular glass slab, scale, glass prism, concave mirror on stand, stand for candle/kerosene lamp, ground glass screen on stand, convex lens on stand, geometry box and calorimeter.

##### **b) Consumable Items**

Cylindrical pencil, thread non-stretchable, drawing paper, pencil, connecting wires, 10 alpins, drawing sheet, rubber, 4 drawing pins to fix the drawing sheet on the drawing board, a small weight to fix the pins on the sheet of the board, candle/small kerosene lamp.

#### **5.3.2 For Chemistry Based Practicals**

##### **a) Non-Consumable Items**

Small triangular file, asbestos sheet, cork, cork borer set, thistle funnel, bent glass tube, plastic tube, stand, test tubes with test tube stand, glass rod, test tube holder, breakers, sample pieces of cotton, pair of tongs.

##### **b) Consumable Items**

Glass tube, gas burner/sprit lamp, boiling tube, plastic or wax, beaker shelf, gas jar with lids, filter paper, funnel, chemicals for the preparation of gases lighter than air and heavier than air, burner, two carbon electrodes with conducting wire, dry cell, galvanometer/torch bulb, urea, wax, cane sugar, silica, sodium chloride, potassium chloride, sodium sulphate or any other covalent/ionic compounds, candle, hot plate, acetone, alcohol, benzene, carbon chloride, chloroform, phenol, match-box, glass slide, china dish, glass rod, samples of C, P, S, Mg, Al, Cu, Mineral acids like HCl, H<sub>2</sub>SO<sub>4</sub>, HNO<sub>3</sub>.

#### **5.3.3 For Biology Based Practicals**

##### **a) Non- Consumable Items**

Beaker, conical flask, glass rod, retort stand, dropper, thread, large cork, forceps, thread aquatic plant, compound microscope, slides, mounted needle, tripod stand, gauge, ceramic tile, scalpel/knife.

##### **b) Consumable Items**

One thistle funnel, cellophane paper/parchment paper, common salt, sugar, water, Petri dish, raisins, test tube, trough, potato, mercury, soaked genn 1 inating seeds of pea/gram, KOH pellets, matchbox, cover slips, onion, iodine solution, ethanol (Alcohol), potted plant, a small cube of butter.



## Secondary Level

# HOME SCIENCE

(Human Ecology and Family Science)

## Practical Examination

UNDER NEW SYLLABUS

**Time Allowed: 2 ½ hours**

**Max Marks: 15**

### DISTRIBUTION OF MARKS

- |                                  |                 |
|----------------------------------|-----------------|
| 1. Practical work (2 practicals) | 4 x 2 = 8 marks |
| 2. Record book                   | = 3 marks       |
| 3. Viva-voce based on practical  | = 4 marks       |

**Total Marks = 15 marks**

## 6. LIST OF PRACTICALS

### 6.1 Our Food

6.1.1 Observe the food items in front of you and comment on the following:

- Identify the cooking methods used in each sample
- Change in colour, texture and flavor of each sample
- Method of cooking that causes minimum loss of nutrients

Teacher to provide ready samples of any one of the following food preparations-

Rice: Jeera rice, rice idli, biryani;

Potatoes: mashed potatoes, potato fries, potato bhaji;

Wheat: puri, parantha, and chapatti.

6.1.2. Your mother has prepared a Paushtic roti for you using the following ingredients:

Whole wheat, besan, grounded sprouts, mashed paneer, salt, chilli, ajwain and oil.

- Identify the food groups used in the roti
- Advice one food group that you can add to the roti and mention its nutritive value.

6.1.3 Adapt the following foods to suit the needs of an

i) An infant

ii) An old person

Food Items:

- a. Cereals
  - b. Pulses
  - c. Potato
  - d. Apple
4. You are preparing dal for your family, how can you modify this dal to suit
- a. A 3 years old child
  - b. An ill person
  - c. An adolescent boy
  - d. An adolescent girl

## 6.2 Our Clothes

6.2.1 Observe the weaves and knits provided to you and do the following:

- a. Identify the weaves in the two samples provided (teacher to provide sample of twill and satin weave)
- b. Identify knits out of the two samples provided (teacher to provide sample of knit and simple weave)
- c. List any two qualities of knitted fabrics which are not present in woven fabrics
- d. Rank the two weaves provided to you in terms of durability (teacher to provide samples of poplin and denim)

6.2.2 Observe the two residues of the burnt fibers and identify the fibers from which they are obtained.

Teacher to provide residues of:

- a. Cellulose and wool
- b. Synthetic and silk

### **\*For disabled**

Identify the fabric given to you by touching and feeling the texture  
(Teacher to provide samples of cotton, jute, silk and wool)

6.2.3 Create a satin weave using colored paper and ribbon/ wool string

6.2.4 Remove the two stains provided by your teacher (teacher to provide a) Ink stain b) lipstick stain)

### **\*For disabled**

Write down the procedure for removing the following stains:

- a. Paint/ nail polish
- b. Oil/ grease

- 6.2.5 Identify the following materials and list their use for washing and finishing a garment
- Reetha nut
  - Gum Arabic
  - Vinegar
  - Corn flour/ rice water

### 6.3 Our Home

- 6.3.1 A. Identify the two important missing items from the first aid kit provided to you  
B. identify the items from the first aid kit which will be used for the following
- burns
  - sprain
  - bleeding

- 6.3.2 From a given picture identify two risks and suggest two measures you would follow to prevent these.

Teacher to display a picture showing any two of the following risks:

- Poisoning
- Electrical shock
- Falls
- Cuts

- 6.2.3 A. Match the items on display with their suitable cleansing agent

(Teacher to provide items: plastic mug, mirror, brass item and cleansing agents- tamarind, moist newspaper and vinegar)

B. Wash a dirty plastic article using the proper procedure and materials

**\*For disabled**

State the appropriate cleansing agents and methods of cleaning to clean the mentioned surfaces:

- Bathroom tiles
- Metal taps
- Window panes
- Plastic bucket

### 6.4 Our Resources

- 6.4.1 A. Give two suggestions for reducing expenditure on food  
B. Give two reasons for savings in a family of four having parents and two teenagers
- 6.4.2 List down the points to be considered in the first two stages of management in the arrangement of a marriage function.

- 6.4.3 Give two suggestions for each of the following activities
- To make your time plan practical and flexible
  - To make your time plan lighter
- 6.4.4 Your goal is to score good marks in your open school examination. Write down the resources required and a plan of action to be followed to achieve the goal.

## **6.5 Growth and Development**

- 6.5.1 Based on your previous observations compare the vocabulary and sentence formation of two children aged 1 year and 2 years.
- 6.5.2 Make a simple low cost toy/ game using the given materials for any one child from the given ages:
- One year old
  - Four years old
  - Eight years old

Teacher to provide a basket of household materials

- 6.5.3 Observe the given toys and evaluate the age group for which it is suitable.
- Rattle
  - Toy car
  - Building blocks/ puzzles
  - Skipping rope

## **6.6 Our Rights and Responsibilities**

- 6.6.1 A. Identify two missing information in the label provided (teacher to provide a torn label or a printed label of any product with two missing information)
- B. which standardization mark is given on the following products:
- Spices
  - Butter
  - Biscuits
  - Pickle

### **\*For Disabled**

List any two products with ISI or Agmark mark and give all the information that should be on the label.

- 6.6.2 Prepare a label for any one product on display. (teacher to provide sample of haldi/ dhanian powder and biscuits)