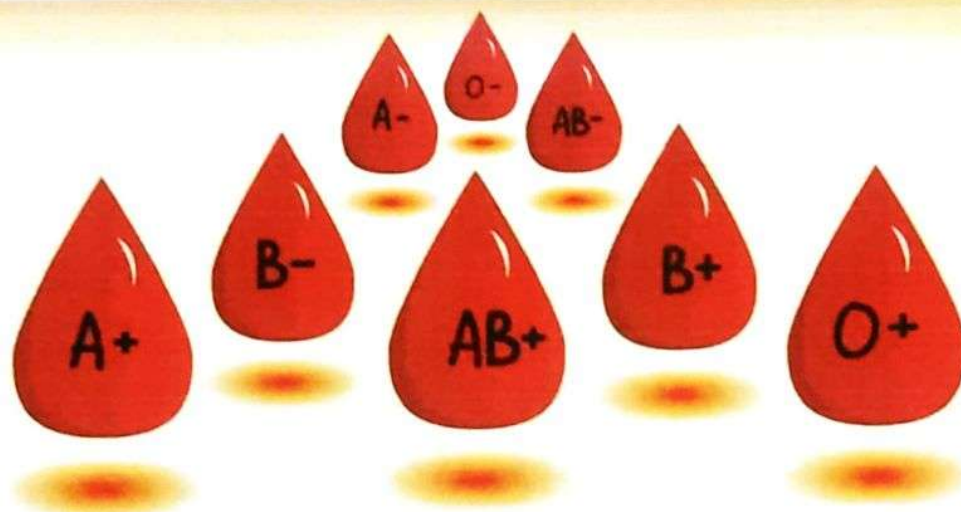


# Identification of the blood group and maintenance of blood group database of SVCR GDC students



Submitted by

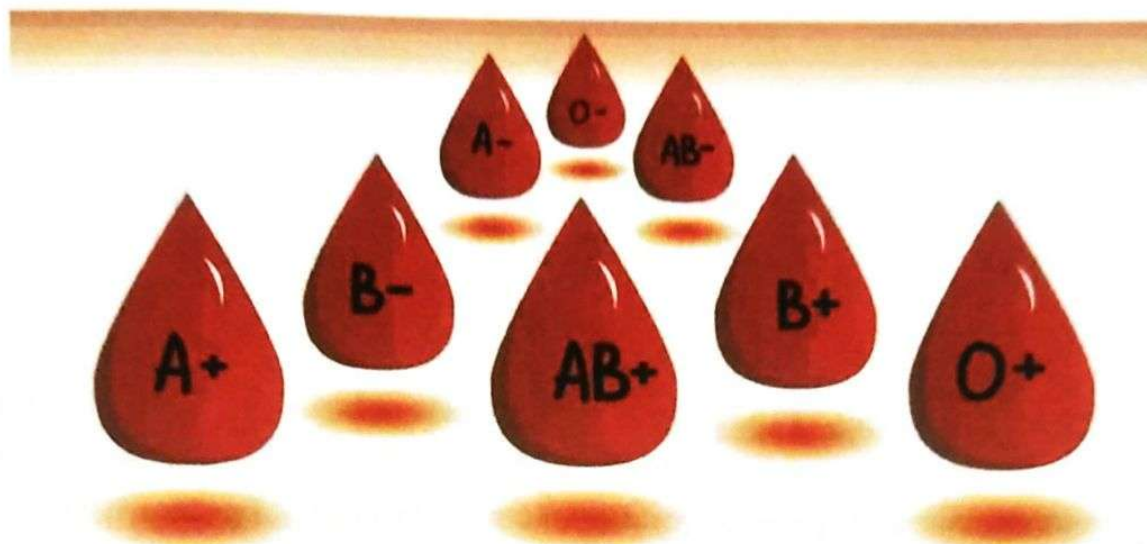
Gopikrishna (III BZC)  
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February, 2018

# IDENTIFICATION OF THE BLOOD GROUP AND MAINTENANCE OF BLOOD GROUP DATABASE OF SVCR GDC STUDENTS



## Submitted by

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Palamaner.

February, 2018



**S.V.C.R GOVERNMENT COLLEGE::PALAMANER**

**Certificate**

**Department of Chemistry**

Certified to be the bonafied work done by A. Gopikrishna (III BZC), G. Nagaraja (III BZC) and B. Siva Kumar (III BZC) in the Department of Chemistry and Zoology during the academic year 2017-2018.

In-charge,  
Department of Chemistry,  
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Palamaner.

## Identification of the blood group and maintenance of blood group database of SVCR GDC students

### 1. Introduction:

Blood is a liquid tissue. This contains 55% of liquid and 45% of cells. The blood is in red colour with a little bit of base character. The study of blood is called Haematology. This blood circulates all over the body by the Heart circulatory system. The liquid in blood is called Plasma(55%). The blood contains RED BLOOD CELLS and WHITE BLOOD CELLS (LEUCOCYTES), PLATELETS. An adult man contains nearly 5 to 6 litres of blood. The total percentage of RBC in blood is called Haematocrit value.

Plasma contains 92% of water. Remaining 8% is of plasma protein. (Albumins, Globulins, Fibrinogen, Prothrambin, Heparin). Plasma proteins works as Acid-Base Buffer and stores blood pH at 7.4. Plasma contains Na, K, Ca, Mg, chlorides, bicarbonates, sulphates, phosphates.

Blood cells are of three types.

1. Erythrocytes (Red Blood Cells)
2. Leucocytes (White Blood Cells)
3. Platelets

#### 1. Erythrocytes:

The mammalian blood cells are in biconcave, anucleus and circular shape. The size of mammalian RBC is 7.8  $\mu$ m. Every solid millimetre of blood in males contains 5 millions and in females contains 4.5 millions of Red blood cells. RBC has the Haemoglobin in their cytoplasm. Every Haemoglobin particle is made up of 4 molecules of Haem. At Centre of every Haem molecules a  $Fe^{2+}$  is present. All of this will have a bond with one  $O_2$  Molecule. Every Haemoglobin molecule circulates four Oxygen molecules. Mammalian RBC has 120 days of life span. After the completion of the life span the RBCs are destroyed by spleen and liver.

#### 2. Leucocytes:

These are anucleus and colour less cells. These are either circular or shapeless cells. WBCs are bigger than RBCs and Lesser than RBCs. In normal

stage every solid milli metre of blood contains 6000 to 10000 White Blood Cells. There are two types of WBCs in blood.

**Granulocytes:** These cells contain Granules in their cytoplasm. Shape of these cells nucleus is in different types, that's why it is called polymorph nucleus leucocytes. These cells grasp acid or base or neutral substances. According to their character grasping substances, granulocytes are three types.

**Basophils:** These cells occupy 0.4% in total amount WBCs. Nucleus of these cells is divided into lobes. These are "Grasp Base substances". Less amount of Granules are present in their cytoplasm. Heparine, Histamines are developed by Basophils. In essential situations basophils play a role of Mast cells.

**Eosinophils/acidophils:** These Cells occupy 2.3% in total amount of WBCs. The nucleus of these cells has two lobes. These cells grasp Eosin which has acidic character. These cells plays main role in allergic immune response. The number of eosinophils are increased at time of allergy.

**Neutrophils:** The neutrophils occupy 62% in total amount of WBCs. Nucleus has 2 to 5 lobes. The granules in cytoplasm are small and many in number. This Absorbs are Nutral substances. Neutrophils are effective Phagocytic cells. There are called Microscopic Police Men.

**Agranulocytes:** Granules are absent in the cytoplasm of Agranulocytes. Nucleus are doesn't divided into lobes. These are two types.

**Lymphocytes:** The Lymphocytes occupied 30 % in total amount of WBCs. The Nucleus occupied more place inside of cell. There are two types of Lymphocytes. They are B-lymphocytes which produces Antibodies and the other is T-lymphocytes which plays main role in immunity. Some lymphocytes has the life span of about some days and some lymphocytes (B and T Memory cells) has the long life span.

**Monocytes:** The monocytes occupied 5.3 % in total amount of W.B.Cs. The Nucleus of these cells is in Kidney shape. These are Macro Phagocytic Cells. They eat Bacterias and Died cells.

3. Blood Platelets:

These are round, Circular, Diconvex, Anucleus cells. Every solid milli metre of blood contains 250000 to 450000 of Platelets. Blood Platelets are the cells which are developed in the Fragmentation process by Megakaryocytes from Bone marrow. The life span of Platelets is 5-9 days. These cells secretes Thromboplast which play main role in blood clotting.

**2. Apparatus :** Glass slides, Cotton, Needles, Stir Sticks.

**3. Chemicals:** Diagnosis antibodies (A antibody, B antibody, Rh or D antibody), Spirit, blood sample.

**4. Principle:** The Red Blood Cells contains Antigens and Rhesus factor on the surface. The different blood groups are determined through these two things. Antibodies are present in the blood serum.

The following table contains the list of antigens and antibodies present in Blood groups:

Name of the Blood Group	Antigens	Antibodies
A	Anti A	anti b
B	Anti B	anti a
AB	Anti A & B	Absence of antibodies
O	Absence of antigens	Anti a & b

We call the blood group names according to the presence of antigens. If the blood doesn't have any antigens we call it Zero (0) or "O" Blood group. Antigen A doesn't accepts antibody A as follows Antigen B doesn't accepts antibody B. As a result, when the same factors are combined together, agglutination or Precipitation forms basing on agglutination or precipitation we will identify the blood groups.

1. If the blood sample forms agglutination or precipitation with the 'Antibody A' , the blood sample definitely contains 'Antigen A' , so the blood sample belongs to the 'A group'.

2. If the blood sample forms agglutination or precipitation with the 'Antibody B', the blood sample definitely contains 'Antigen B', so the blood sample belongs to the 'B group'.

3. If the blood sample forms agglutination or precipitation with The 'Antibody A' and 'Antibody B', the blood sample definitely contains 'Antigen A' and 'Antigen B', so the Blood sample belongs to the 'AB group' .

4. If the blood sample doesn't forms agglutination with the 'Antibody A' and 'Antibody B', the blood sample doesn't have any Antigen. So the presence of Antigens on the blood sample is nil. So the blood sample belongs to the 'O group'

**Positive or Negative:** The blood sample character positive or negative depends on the Rhesus factor. If the blood sample contains Rhesus factor it will be called as Positive, if the blood sample doesn't have Rhesus factor it will be called as Negative.

1. If the blood sample forms agglutination or precipitation with the Rhesus antibody, the blood sample contains Rhesus factor on the surface of the RBC, so the blood group is POSITIVE (+).

2. If the blood sample doesn't forms agglutination or precipitation with the Rhesus antibody, the blood sample doesn't have Rhesus factor. So the blood is NEGATIVE (-).

97 % of the human beings are contains Rhesus factor on their Red blood cell surface. The remaining 3% of the human beings are NEGATIVE. These 3% of the people faces problems for identifying the donors in difficulty situations (like accidents, lack of the blood, operations time etc.) for the matching blood group.

**Antigen (Ag):** Antigens are the substances that react with the products( antibodies and immune-competent cells) of a specific immune response.

**Antibody (Ab):** Antibodies are the immune-globulins that react with the Antigens. These are 'Y - Shaped' Glyco-proteins.

**Rhesus factor:** Rhesus factor is a protein, this protein if firstly identified in Rhesus monkeys, that's why it is called as Rhesus factor.

## 5. Procedure:

- Take a clean and dry glass slide.
- Clean the tip of any finger with little amount of spirit to avoid infections from micro-organisms.
- Slightly prick the finger tip with a sterile needle which is cleaned with spirit.
- When we prick the skin of the fingers, the cell will be damaged. A little bit of blood will come out from that pricked spot.
- Take three drops of blood from the finger onto the glass slide respectively with the distance of 1 cm.
- Add one drop of Antibody A on one or first drop of blood.
- Add one drop of Antibody B on one or second drop of blood.
- Add one drop of Antibody D or Rhesus on one or third drop of blood.
- Mix each drop of blood with each drop of Antibody by using stir sticks for each one.
- Don't use single stir stick for all.
- Within 30 seconds the agglutination or precipitation will form with in the drops.
- Observe the agglutination on glass slide and identify the blood group according to the principle which is explained in above section.



## 6. Results and Discussion:

S.No	Name	Course	Gender	Mobile number	Blood Group
1.	M.S. Haseeb	I B.Sc	Male	9000175479	O <sup>+</sup>
2.	S. Ayesha	I B.Sc	Female	7093249863	A <sup>+</sup>
3.	M. Priskila	I B.A	Female	8008760406	O <sup>+</sup>
4.	V. Hemanth kumar	I B.Sc	Male	8096237075	B <sup>+</sup>
5.	D. Likitha	I B.Sc	Female	8500677150	A <sup>+</sup>
6.	K. Muniratnam	I B.Sc	Male	9849264561	AB <sup>+</sup>
7.	D.G.Kiran kumar	I B.Sc	Male	9666527948	B <sup>+</sup>
8.	K.Soma sekhar	I B.Sc	Male	8142020196	O <sup>+</sup>
9.	B. Giri prasad	I B.A	Male	9640771014	AB <sup>+</sup>
10.	B. Bhuvaneshwari	I B.Sc	Female	9966868632	A <sup>+</sup>
11.	P. Harshavardhan	I B.Sc	Male	9908495715	O <sup>+</sup>
12.	K. Anilkumar	I B.Sc	Male	8500755452	O <sup>+</sup>
13.	N. Maneesha	I B.A	Female	9908743508	B <sup>+</sup>
14.	N. Surendra reddy	I B.Sc	Male	9676228267	B <sup>+</sup>
15.	K. Saraswathi	I B.Sc	Female	9553931354	B <sup>+</sup>
16.	S. Siraj basha	I B.Sc	Male	8340880072	O <sup>+</sup>
17.	K.Yojitha	I B.Sc	Female	8008665125	O <sup>+</sup>
18.	Y. Siva kumar	I B.A	Male	8886876503	AB <sup>+</sup>
19.	K. Komala	II BA	Female	9505635789	O <sup>+</sup>
20.	G.Nagaraja	II B.A	Male	9666116034	O <sup>+</sup>
21.	P.S. Hemalatha	II BA	Female	8465985385	B <sup>+</sup>
22.	K. Priyadharshini	II BA	Female	9502230446	O <sup>+</sup>
23.	V. Rajeswari	II B.Sc	Female	7993507043	B <sup>+</sup>
24.	V. Vijay kumar	II B.Sc	Male	9963942845	AB <sup>+</sup>
25.	M. Anitha	II B.Sc	Female	9177034558	B <sup>+</sup>
26.	K. Sesikala	II B.Sc	Female	8790578304	AB <sup>+</sup>
27.	S. Pooja	II B.Sc	Female	9949998973	B <sup>+</sup>
28.	S. Geetha	II B.Sc	Female	8179398824	O <sup>+</sup>
29.	B. Indrani	II B.Sc	Female	9652074951	AB <sup>+</sup>
30.	D.R.Purushotham	II B.Sc	Male	9505026495	B <sup>+</sup>
31.	S. Pavani	II B.Sc	Female	9703518230	B <sup>+</sup>
32.	P. Manju	II B.Sc	Female	9502230573	O <sup>+</sup>
33.	N.B. Sivaraj kumar	II B.Sc	Male	9959635759	O <sup>+</sup>
34.	S. Devi	II B.Sc	Female	8186001263	AB <sup>+</sup>
35.	S. Koteswari	II B.Sc	Female	7032759857	B <sup>+</sup>
36.	S. Ashraf ali	II B.Sc	Male	9666317430	O <sup>+</sup>
37.	G. Balaji	II B.Sc	Male	7780644611	A <sup>+</sup>
38.	S. Ruksana	II B.Sc	Female	8332867403	O <sup>+</sup>
39.	S. Nasreen taj	II B.Sc	Female	7416333208	B <sup>+</sup>
40.	G. Hemanth Kumar	III B.Sc	Male	9542726958	B <sup>+</sup>
41.	C. Pavan Kumar	III B.Sc	Male	8008657877	O <sup>+</sup>
42.	P. Jayasenkar	III B.Sc	Male	9705288521	O <sup>+</sup>

43.	G. Saran Kumar	III B.Sc	Male	9642869153	A <sup>+</sup>
44.	C. Ashok Kumar	III B.Sc	Male	7032365224	AB <sup>+</sup>
45.	S. Salma	III B.Sc	Female	8341117810	A <sup>+</sup>
46.	B. Sumathi	III B.Sc	Female	9676601631	O <sup>+</sup>
47.	K. Vanitha jyothi	III B.Sc	Female	7997656953	
48.	V. Pallavi	III B.Sc	Female	9441914122	B <sup>+</sup>
49.	M. Maheswari	III B.Sc	Female	8885235024	B <sup>+</sup>
50.	G. Revathi	III B.Sc	Female	8897525940	B <sup>+</sup>
51.	S. Divya	III B.Sc	Female	9866350320	A <sup>+</sup>
52.	B. Sivakumar	III B.Sc	Male	7674887722	O <sup>+</sup>
53.	G. Nagaraja	III B.Sc	Male	9100780480	A <sup>+</sup>
54.	E. Divyasai	III B.Sc	Female	8978814156	B <sup>+</sup>
55.	TS. Joshna priya	III B.Sc	Female	9908821059	B <sup>+</sup>
56.	A. Thejaswi	III B.Sc	Female	9490563196	B <sup>+</sup>
57.	M. Naveen kumar	III B.Sc	Male	8897661619	B <sup>+</sup>
58.	SR. Thabeedulla	III B.Sc	Male	9553614544	A <sup>+</sup>
59.	A. Gopikrishna	III B.Sc	Male	8919789515	B <sup>-</sup>
60.	K. Devi	III B.Sc	Female	9553260336	A <sup>+</sup>
61.	S.Ayeshabanu	III B.Sc	Female	9154868655	B <sup>+</sup>
62.	S. Harikrishna	III B.Sc	Male	8978970203	O <sup>+</sup>
63.	E. Ganesh	III B.A	Male	7732008454	A <sup>+</sup>
64.	P. Thejovathi	III B.Sc	Female	9676628751	B <sup>+</sup>
65.	V. Devendra	II B.Sc	Male	9848414363	O <sup>+</sup>
66.	P. Pavitra	I B.Sc	Female	8499087132	A <sup>-</sup>
67.	S. Safeer	III B.Com	Male	9133905263	O <sup>+</sup>
68.	P. Renuka	III B.com	Female	8790914487	A <sup>+</sup>
69.	S. Jakeer	I B.Com	Male	7416277627	O <sup>+</sup>
70.	S. Rajasekhar	I B.Com	Male	8639228626	AB <sup>+</sup>
71.	G. Anil Kumar	I B.Com	Male	7674878841	A <sup>+</sup>
72.	S. Yakub	III B.Sc	Male	7981190011	B <sup>+</sup>
73.	T.Meena	II B.A	Female	8897697233	A <sup>+</sup>
74.	J.Kavya	II B.A	Female	9703762077	B <sup>+</sup>
75.	P.Vaidheeshwari	II B.Com	Female		A <sup>+</sup>
76.	S.Sireesha	II B.A	Female		B <sup>+</sup>
77.	S.Gowtham Raju	I B.Com	Male		O <sup>+</sup>
78.	B.Hareesh	I B.Com	Male	9502656814	B <sup>+</sup>
79.	A.Manohar	I B.Com	Male		B <sup>+</sup>
80.	V.Bhaskar	I B.Com	Male		B <sup>+</sup>

81.	M.Satyavelu	I B.Com	Male		B <sup>+</sup>
82.	T.Devendra	II B.Com	Male		O <sup>+</sup>
83.	S.Jalandar Basha	I B.Com	Male		O <sup>+</sup>
84.	S. Rasheed	III BA	Male		O <sup>-</sup>
85.	S. Nabeera	III BA	Female		O <sup>+</sup>
86.	S. Nagma	III BA	Female		A <sup>+</sup>
87.	S. Sulthana	III BA	Female		O <sup>+</sup>
88.	S. Sandya	III B.Sc	Female	9441914122	B <sup>+</sup>
89.	C. Naveen Kumar	II BA	Male		B <sup>-</sup>
90.	Bhanumathi	III BA	Female	8985958300	O <sup>-</sup>
91.	M. Mahesh	I B.Com	Male	9502656814	B <sup>+</sup>
92.	S. Siddiq Basha	I B.Com	Male	9701039349	A <sup>+</sup>
93.	Thejasree	I B.Com	Male	7674887722	O <sup>+</sup>
94.	Afrid Basha	I M.A	Male	8341074959	O <sup>+</sup>
95.	Ganesh	II MA	Male	7993191763	B <sup>+</sup>
96.	Jaya sankar	I MA	Male	7659803312	B <sup>+</sup>
97.	Kiran kumar	I M.A	Male	8886227815	A <sup>+</sup>
98.	T.Yogendra	II B.Sc	Male	9502420137	B <sup>+</sup>
99.	A.Madhu	I B.Sc	Male	9705092987	B <sup>+</sup>
100.	G.N.Bharath	II B.Sc	Male	9603672886	O <sup>+</sup>
101.	N.Devarajulu	I B.A	Male	7093640336	B <sup>-</sup>
102.	J.Vasu	I B.Com	Male	9652744810	B <sup>+</sup>
103.	V.Neelima	I B.Sc	Female	9652625617	AB <sup>+</sup>
104.	B.Vedavyas	I B.Com	Male	9848410504	O <sup>+</sup>
105.	R.Theja	I B.Com	Male		AB <sup>+</sup>
106.	R.Prakash	I M.A	Male		O <sup>+</sup>
107.	M.Uma sekhar	I B.Com	Male		A <sup>+</sup>
108.	G.Uday kumar	I B.Com	Male		B <sup>+</sup>
109.	T.Vinod kumar	I B.Com	Male		O <sup>+</sup>
110.	K.Vanitha Jyothi	III B.Sc	Female	7997656953	B <sup>+</sup>
111.	R. Naveen	II B.Sc	Male		O <sup>+</sup>
112.	P. Bhanuprakash	NSS PO	Male	9492152931	A <sup>+</sup>

Blood group Name	Number of students	Percentage
A <sup>+</sup>	20	17.8
A <sup>-</sup>	01	0.89
B <sup>+</sup>	39	34.82
B <sup>-</sup>	03	2.67
AB <sup>+</sup>	12	10.71
AB <sup>-</sup>	0	0
O <sup>+</sup>	36	32.14
O <sup>-</sup>	01	0.89
Total number of the students	112	

96 % of blood samples of the students have Rhesus factor on their Red blood cell surface and so the blood group is positive (+).The remaining 4% of blood samples of the students doesn't have Rhesus factor and hence the blood group is negative.

### 7. Conclusion:

The Departments of Chemistry and Zoology organized Blood grouping camp in S.V.C.R. Govt. Degree College, Palamaner. 112 members have undergone blood grouping. Out of which universal donors are 37 students, 12 students are universal acceptors. 96% of the student blood group is positive (+).The students have undergone the blood grouping with the expertise of students of Chemistry and Zoology departments.

# ACTION PHOTOGRAPHS







## ప్రతి ఒక్కరూ రక్తం గ్రూపు తెలుకోవాలి



**బ్లడ్ గ్రూప్ నిర్ధారణ శిబిరం నిర్వహిస్తున్న దృశ్యం**

పలమనేరు పిల్ల  
వరి కి(ప్రభ  
న్యూస్): ప్రతి  
మనిషి తమ రక్తం  
గ్రూపును ముందు  
గా తెలిసిపెట్టు  
కోవడం వలన  
చాలా ఉపయోగా  
లు వుంటాయని  
పలమనేరు డిగ్రీక  
ళాశాల ప్రెస్సిపాల్

డాక్టర్ బాబు తెలిపారు. మంగళవారం ప్రభుత్వ డిగ్రీ కళాశాలలో ఎన్ఎస్ఎస్ విభాగం, జంతుశాస్త్ర విభాగాల ఆధ్వర్యంలో జరిగిన బ్లడ్ గ్రూప్ నిర్ధారణ కార్యక్రమంలో ఆయన ప్రసంగించారు. కళాశాలకు చెందిన 118 మంది విద్యార్థిని, విద్యార్థులకు రక్త పరీక్షలు నిర్వహించి వారి గ్రూపుల వివరాలను తెలియజేశారు. ప్రమాద సమయంలో ఇతరుల నుంచి రక్తాన్ని స్వీకరించాలన్నా, ఇతరులకు దానం చేయాలన్నా ముందుగా గ్రూపు విషయం తెలిసి వుండడం వలన వేగంగా నిర్ణయం తీసుకోవడానికి వీలౌతుందన్నారు. ఈ కార్యక్రమంలో ఎన్ఎస్ఎస్ ప్రోగ్రామ్ ఆఫీసర్ బానుప్రకాష్, జంతు శాస్త్ర అధ్యాపకురాలు లక్ష్మీప్రసన్నలత, ఎన్ఎస్ఎస్ వాలంటీర్లు పాల్గొన్నారు.

## విద్యార్థులకు రక్త గ్రూపు నిర్ధారణ పరీక్షలు



**విద్యార్థులకు బ్లడ్ గ్రూపు నిర్ధారణ పరీక్షలు చేస్తున్న దృశ్యం**

పలమనేరు : స్థానిక ప్రభుత్వ డిగ్రీ కళాశాలలో విద్యార్థులకు రక్త గ్రూపు నిర్ధారణ పరీక్షలు మంగళవారం నిర్వహించారు. 118 విద్యార్థులకు రక్తపరీక్షలు చేసి వారి బ్లడ్ గ్రూపులను తెలియజేశారు. రక్తదానం చేసేందుకు బ్లడ్ గ్రూపు తెలిసిఉండాలని, అందుకే ఈ పరీక్షలు చేయించామని ప్రిన్సిపల్ బాబు తెలిపారు. జంతుశాస్త్ర అధ్యాపకురాలు లక్ష్మీ ప్రసన్నలత, ఎన్సీసీ కో-ఆర్డినేటర్ భానుప్రకాష్ తదితరులు పాల్గొన్నారు.