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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|

## HAEMATOLOGY
## COMPLETE BLOOD COUNT (CBC)

### RED BLOOD CELLS (RBCS) COUNT AND INDICES

| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|
| **HAEMOGLOBIN (HB)**<br>*by CALORIMETRIC* | 11.7$^L$ | gm/dL | 12.0 - 16.0 |
| RED BLOOD CELL (RBC) COUNT<br>*by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE* | 4.12 | Millions/cmm | 3.50 - 5.00 |
| **PACKED CELL VOLUME (PCV)**<br>*by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER* | 34.9$^L$ | % | 37.0 - 50.0 |
| MEAN CORPUSCULAR VOLUME (MCV)<br>*by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER* | 84.8 | fL | 80.0 - 100.0 |
| MEAN CORPUSCULAR HAEMOGLOBIN (MCH)<br>*by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER* | 28.3 | pg | 27.0 - 34.0 |
| MEAN CORPUSCULAR HEMOGLOBIN CONC. (MCHC)<br>*by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER* | 33.4 | g/dL | 32.0 - 36.0 |
| RED CELL DISTRIBUTION WIDTH (RDW-CV)<br>*by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER* | 13.3 | % | 11.00 - 16.00 |
| RED CELL DISTRIBUTION WIDTH (RDW-SD)<br>*by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER* | 41.9 | fL | 35.0 - 56.0 |
| MENTZERS INDEX<br>*by CALCULATED* | 20.58 | RATIO | BETA THALASSEMIA TRAIT: < 13.0<br>IRON DEFICIENCY ANEMIA: >13.0 |
| GREEN & KING INDEX<br>*by CALCULATED* | 27.28 | RATIO | BETA THALASSEMIA TRAIT: < = 65.0<br>IRON DEFICIENCY ANEMIA: > 65.0 |

### WHITE BLOOD CELLS (WBCS)

| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|
| TOTAL LEUCOCYTE COUNT (TLC)<br>*by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 7030 | /cmm | 4000 - 11000 |

### DIFFERENTIAL LEUCOCYTE COUNT (DLC)

| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|
| NEUTROPHILS<br>*by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 56 | % | 50 - 70 |
| LYMPHOCYTES<br>*by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 40$^H$ | % | 20 - 40 |

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**NOT VALID FOR MEDICO LEGAL PURPOSE**

440 Dated 17.5.2012 u/s 80 G OF INCOME TAX ACT. PAN NO. AAAAP1600,
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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|
| **EOSINOPHILS**<br>  *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | $0^L$ | % | 1 - 6 |
| MONOCYTES<br>  *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 4 | % | 2 - 12 |
| BASOPHILS<br>  *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 0 | % | 0 - 1 |
| **ABSOLUTE LEUKOCYTES (WBC) COUNT** | | | |
| ABSOLUTE NEUTROPHIL COUNT<br>  *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 3937 | /cmm | 2000 - 7500 |
| ABSOLUTE LYMPHOCYTE COUNT<br>  *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | **$2812^L$** | /cmm | 800 - 4900 |
| **ABSOLUTE EOSINOPHIL COUNT**<br>  *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | $0^L$ | **/cmm** | **40 - 440** |
| ABSOLUTE MONOCYTE COUNT<br>  *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 281 | /cmm | 80 - 880 |
| ABSOLUTE BASOPHIL COUNT<br>  *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 0 | /cmm | 0 - 110 |
| **PLATELETS AND OTHER PLATELET PREDICTIVE MARKERS.** | | | |
| PLATELET COUNT (PLT)<br>  *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE* | 158000 | /cmm | 150000 - 450000 |
| PLATELETCRIT (PCT)<br>  *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE* | 0.2 | % | 0.10 - 0.36 |
| **MEAN PLATELET VOLUME (MPV)**<br>  *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE* | $13^H$ | fL | **6.50 - 12.0** |
| PLATELET LARGE CELL COUNT (P-LCC)<br>  *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE* | 72000 | /cmm | 30000 - 90000 |
| **PLATELET LARGE CELL RATIO (P-LCR)**<br>  *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE* | $45.4^H$ | % | **11.0 - 45.0** |
| PLATELET DISTRIBUTION WIDTH (PDW)<br>  *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE* | 16.4 | % | 15.0 - 17.0 |

NOTE: TEST CONDUCTED ON EDTA WHOLE BLOOD

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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|

## ERYTHROCYTE SEDIMENTATION RATE (ESR)

| | | | |
|---|---|---|---|
| ERYTHROCYTE SEDIMENTATION RATE (ESR)<br>*by MODIFIED WESTERGREN AUTOMATED METHOD* | $31^H$ | mm/1st hr | 0 - 20 |

**INTERPRETATION:**
1. ESR is a non-specific test because an elevated result often indicates the presence of inflammation associated with infection, cancer and auto-immune disease, but does not tell the health practitioner exactly where the inflammation is in the body or what is causing it.
2. An ESR can be affected by other conditions besides inflammation. For this reason, the ESR is typically used in conjunction with other test such as C-reactive protein
3. This test may also be used to monitor disease activity and response to therapy in both of the above diseases as well as some others, such as systemic lupus erythematosus

**CONDITION WITH LOW ESR**
A low ESR can be seen with conditions that inhibit the normal sedimentation of red blood cells, such as a high red blood cell count (polycythaemia), significantly high white blood cell count (leucocytosis) , and some protein abnormalities. Some changes in red cell shape (such as sickle cells in sickle cell anaemia) also lower the ESR.

**NOTE:**
1. ESR and C - reactive protein (C-RP) are both markers of inflammation.
2. Generally, ESR does not change as rapidly as does CRP, either at the start of inflammation or as it resolves.
3. **CRP is not affected by as many other factors as is ESR, making it a better marker of inflammation.**
4. If the ESR is elevated, it is typically a result of two types of proteins, globulins or fibrinogen.
5. Women tend to have a higher ESR, and menstruation and pregnancy can cause temporary elevations.
6. Drugs such as dextran, methyldopa, oral contraceptives, penicillamine procainamide, theophylline, and vitamin A can increase ESR, while aspirin, cortisone, and quinine may decrease it

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TEST PERFORMED AT KOS DIAGNOSTIC LAB, AMBALA CANTT.

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| Test Name | Value | Unit | Biological Reference interval |
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## CLINICAL CHEMISTRY/BIOCHEMISTRY

### LIPID PROFILE : BASIC

| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|
| CHOLESTEROL TOTAL: SERUM<br>*by CHOLESTEROL OXIDASE PAP* | 199.85 | mg/dL | OPTIMAL: < 200.0<br>BORDERLINE HIGH: 200.0 - 239.0<br>HIGH CHOLESTEROL: > OR = 240.0 |
| TRIGLYCERIDES: SERUM<br>*by GLYCEROL PHOSPHATE OXIDASE (ENZYMATIC)* | 98.19 | mg/dL | OPTIMAL: < 150.0<br>BORDERLINE HIGH: 150.0 - 199.0<br>HIGH: 200.0 - 499.0<br>VERY HIGH: > OR = 500.0 |
| HDL CHOLESTEROL (DIRECT): SERUM<br>*by SELECTIVE INHIBITION* | 63.88 | mg/dL | LOW HDL: < 30.0<br>BORDERLINE HIGH HDL: 30.0 - 60.0<br>HIGH HDL: > OR = 60.0 |
| LDL CHOLESTEROL: SERUM<br>*by CALCULATED, SPECTROPHOTOMETRY* | 116.33 | mg/dL | OPTIMAL: < 100.0<br>ABOVE OPTIMAL: 100.0 - 129.0<br>BORDERLINE HIGH: 130.0 - 159.0<br>HIGH: 160.0 - 189.0<br>VERY HIGH: > OR = 190.0 |
| **NON HDL CHOLESTEROL: SERUM**<br>*by CALCULATED, SPECTROPHOTOMETRY* | **135.97**$^H$ | **mg/dL** | **OPTIMAL: < 130.0**<br>**ABOVE OPTIMAL: 130.0 - 159.0**<br>**BORDERLINE HIGH: 160.0 - 189.0**<br>**HIGH: 190.0 - 219.0**<br>**VERY HIGH: > OR = 220.0** |
| VLDL CHOLESTEROL: SERUM<br>*by CALCULATED, SPECTROPHOTOMETRY* | 19.64 | mg/dL | 0.00 - 45.00 |
| TOTAL LIPIDS: SERUM<br>*by CALCULATED, SPECTROPHOTOMETRY* | 497.89 | mg/dL | 350.00 - 700.00 |
| CHOLESTEROL/HDL RATIO: SERUM<br>*by CALCULATED, SPECTROPHOTOMETRY* | 3.13 | RATIO | LOW RISK: 3.30 - 4.40<br>AVERAGE RISK: 4.50 - 7.0<br>MODERATE RISK: 7.10 - 11.0<br>HIGH RISK: > 11.0 |
| LDL/HDL RATIO: SERUM | 1.82 | RATIO | LOW RISK: 0.50 - 3.0 |

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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|
| *by CALCULATED, SPECTROPHOTOMETRY* | | | MODERATE RISK: 3.10 - 6.0<br>HIGH RISK: > 6.0 |
| **TRIGLYCERIDES/HDL RATIO: SERUM**<br>*by CALCULATED, SPECTROPHOTOMETRY* | 1.54$^L$ | RATIO | 3.00 - 5.00 |

**INTERPRETATION:**

1.Measurements in the same patient can show physiological& analytical variations. Three serial samples 1 week apart are recommended for Total Cholesterol, Triglycerides, HDL & LDL Cholesterol.

2. As per NLA-2014 guidelines, all adults above the age of 20 years should be screened for lipid status. Selective screening of children above the age of 2 years with a family history of premature cardiovascular disease or those with at least one parent with high total cholesterol is recommended.

3. Low HDL levels are associated with increased risk for Atherosclerotic Cardiovascular disease (ASCVD) due to insufficient HDL being available to participate in reverse cholesterol transport, the process by which cholesterol is eliminated from peripheral tissues.

4. NLA-2014 identifies Non HDL Cholesterol (an indicator of all atherogeniclipoproteins such as LDL , VLDL, IDL, Lpa, Chylomicron remnants) along with LDL-cholesterol as co- primary target for cholesterol lowering therapy. Note that major risk factors can modify treatment goals for LDL &Non HDL.

5. Additional testing for Apolipoprotein B, hsCRP,Lp(a ) & LP-PLA2 should be considered among patients with moderate risk for ASCVD for risk refinement

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## URIC ACID

| | | | |
|---|---|---|---|
| URIC ACID: SERUM | 4.7 | mg/dL | 2.50 - 6.80 |

*by URICASE - OXIDASE PEROXIDASE*

**INTERPRETATION:-**

1. GOUT occurs when high levels of Uric Acid in the blood cause crystals to form & accumulate around a joint.
2. Uric Acid is the end product of purine metabolism . Uric acid is excreted to a large degree by the kidneys and to a smaller degree in the intestinal tract by microbial degradation.

**INCREASED:-**

**(A).DUE TO INCREASED PRODUCTION:-**

1. Idiopathic primary gout.
2. Excessive dietary purines (organ meats,legumes,anchovies, etc).
3. Cytolytic treatment of malignancies especially leukemais & lymphomas.
4. Polycythemai vera & myeloid metaplasia.
5. Psoriasis.
6. Sickle cell anaemia etc.

**(B).DUE TO DECREASED EXCREATION (BY KIDNEYS)**

1. Alcohol ingestion.
2. Thiazide diuretics.
3. Lactic acidosis.
4. Aspirin ingestion (less than 2 grams per day ).
5. Diabetic ketoacidosis or starvation.
6. Renal failure due to any cause etc.

**DECREASED:-**

**(A).DUE TO DIETARY DEFICIENCY**

1. Dietary deficiency of Zinc, Iron and molybdenum.
2. Fanconi syndrome & Wilsons disease.
3. Multiple sclerosis .
4. Syndrome of inappropriate antidiuretic hormone (SIADH) secretion & low purine diet etc.

**(B).DUE TO INCREASED EXCREATION**

1. Drugs:-Probenecid , sulphinpyrazone, aspirin doses (more than 4 grams per day), corticosteroids and ACTH, anti-coagulants and estrogens etc.

*** End Of Report ***

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