TEST PERFORMED AT KOS DIAGNOSTIC LAB, AMBALA CANTT.

NAME	**: Mr. RAJINDER SINGH**		
AGE/ GENDER	: 40 YRS/MALE	**PATIENT ID**	: 1728113
COLLECTED BY	:	**REG. NO./LAB NO.**	**: 012501190005**
REFERRED BY	:	**REGISTRATION DATE**	: 19/Jan/2025 08:38 AM
BARCODE NO.	: 01524068	**COLLECTION DATE**	: 19/Jan/2025 08:41AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 19/Jan/2025 11:01AM
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Test Name	Value	Unit	Biological Reference interval

CLINICAL CHEMISTRY/BIOCHEMISTRY

GLUCOSE FASTING (F)

GLUCOSE FASTING (F): PLASMA *by GLUCOSE OXIDASE - PEROXIDASE (GOD-POD)*	90.08	mg/dL	NORMAL: < 100.0 PREDIABETIC: 100.0 - 125.0 DIABETIC: > 0R = 126.0

ADVICE **KINDLY CORRELATE CLINICALLY**

INTERPRETATION

IN ACCORDANCE WITH AMERICAN DIABETES ASSOCIATION GUIDELINES:

1. A fasting plasma glucose level below 100 mg/dl is considered normal.
2. A fasting plasma glucose level between 100 - 125 mg/dl is considered as glucose intolerant or prediabetic. A fasting and post-prandial blood test (after consumption of 75 gms of glucose) is recommended for all such patients.
3. A fasting plasma glucose level of above 125 mg/dl is highly suggestive of diabetic state. A repeat post-prandial is strongly recommended for all such patients. A fasting plasma glucose level in excess of 125 mg/dl on both occasions is confirmatory for diabetic state.

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LIPID PROFILE : BASIC

Test Name	Value	Unit	Biological Reference interval
CHOLESTEROL TOTAL: SERUM *by CHOLESTEROL OXIDASE PAP*	**236.44^{H}**	mg/dL	OPTIMAL: < 200.0 BORDERLINE HIGH: 200.0 - 239.0 HIGH CHOLESTEROL: > OR = 240.0
TRIGLYCERIDES: SERUM *by GLYCEROL PHOSPHATE OXIDASE (ENZYMATIC)*	99.79	mg/dL	OPTIMAL: < 150.0 BORDERLINE HIGH: 150.0 - 199.0 HIGH: 200.0 - 499.0 VERY HIGH: > OR = 500.0
HDL CHOLESTEROL (DIRECT): SERUM *by SELECTIVE INHIBITION*	77.72	mg/dL	LOW HDL: < 30.0 BORDERLINE HIGH HDL: 30.0 - 60.0 HIGH HDL: > OR = 60.0
LDL CHOLESTEROL: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	**138.76^{H}**	mg/dL	OPTIMAL: < 100.0 ABOVE OPTIMAL: 100.0 - 129.0 BORDERLINE HIGH: 130.0 - 159.0 HIGH: 160.0 - 189.0 VERY HIGH: > OR = 190.0
NON HDL CHOLESTEROL: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	**158.72^{H}**	mg/dL	OPTIMAL: < 130.0 ABOVE OPTIMAL: 130.0 - 159.0 BORDERLINE HIGH: 160.0 - 189.0 HIGH: 190.0 - 219.0 VERY HIGH: > OR = 220.0
VLDL CHOLESTEROL: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	19.96	mg/dL	0.00 - 45.00
TOTAL LIPIDS: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	572.67	mg/dL	350.00 - 700.00
CHOLESTEROL/HDL RATIO: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	3.04	RATIO	LOW RISK: 3.30 - 4.40 AVERAGE RISK: 4.50 - 7.0 MODERATE RISK: 7.10 - 11.0 HIGH RISK: > 11.0

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Test Name	Value	Unit	Biological Reference interval
LDL/HDL RATIO: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	1.79	RATIO	LOW RISK: 0.50 - 3.0 MODERATE RISK: 3.10 - 6.0 HIGH RISK: > 6.0
TRIGLYCERIDES/HDL RATIO: SERUM *by CALCULATED, SPECTROPHOTOMETRY*	**1.28^{L}**	RATIO	3.00 - 5.00
ADVICE	**KINDLY CORRELATE CLINICALLY**		

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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Test Name	Value	Unit	Biological Reference interval

ENDOCRINOLOGY

THYROID STIMULATING HORMONE (TSH)

THYROID STIMULATING HORMONE (TSH): SERUM *by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* **3rd GENERATION, ULTRASENSITIVE**	2.588	µIU/mL	0.35 - 5.50

ADVICE **KINDLY CORRELATE CLINICALLY**

INTERPRETATION:

AGE	REFFERENCE RANGE (µIU/mL)
0 – 5 DAYS	0.70 – 15.20
6 Days – 2 Months	0.70 – 11.00
3 – 11 Months	0.70 – 8.40
1 – 5 Years	0.70 – 7.00
6 – 10 Years	0.60 – 5.50
11 - 15	0.50 – 5.50
> 20 Years (Adults)	0.27 – 5.50
PREGNANCY	
1st Trimester	0.10 - 3.00
2nd Trimester	0.20 - 3.00
3rd Trimester	0.30 - 4.10

NOTE:-*TSH levels are subjected to circardian variation, reaching peak levels between 2-4 a.m and at a minimum between 6-10 pm. The variation is of the order of 50 %. Hence time of the day has influence on the measured serum TSH concentration.*

USE:- TSH controls biosynthesis and release of thyroid harmones T4 & T3. It is a sensitive measure of thyroid function, especially useful in early or subclinical hypothyroidism, before the patient develops any clinical findings or goitre or any other thyroid function abnormality.

INCREASED LEVELS:

1.Primary or untreated hypothyroidism, may vary from 3 times to more than 100 times normal depending on degree of hypofunction.
2.Hypothyroid patients receiving insufficient thyroid replacement therapy.
3.Hashimotos thyroiditis.
4.DRUGS: Amphetamines, Iodine containing agents and dopamine antagonist.
5.Neonatal period, increase in 1st 2-3 days of life due to post-natal surge.

DECREASED LEVELS:

1.Toxic multi-nodular goitre & Thyroiditis.
2.Over replacement of thyroid harmone in treatment of hypothyroidism.
3.Autonomously functioning Thyroid adenoma
4.Secondary pituatary or hypothalmic hypothyroidism
5.Acute psychiatric illness

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Test Name	Value	Unit	Biological Reference interval

6.Severe dehydration.
7.DRUGS: Glucocorticoids, Dopamine, Levodopa, T4 replacement therapy, Anti-thyroid drugs for thyrotoxicosis.
8.Pregnancy: 1st and 2nd Trimester

LIMITATIONS:

1.TSH may be normal in central hypothyroidism, recent rapid correction of hyperthyroidism or hypothyroidism, pregnancy, phenytoin therapy.
2.Autoimmune disorders may produce spurious results.

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CLINICAL PATHOLOGY

SEMEN ANALYSIS/SEMINOGRAM

Test Name	Value	Unit	Biological Reference interval
PHYSICAL EXAMINATION			
TIME OF SPECIMEN COLLECTION	19-01-2025	AM/PM	
DURATION OF ABSTINENCE	3 DAYS	DAYS	2 - 7
TYPE OF SAMPLE	FRESH		
LIQUIFACTION TIME AT 37*C	< 30 MINS	MINS	30 - 60
VOLUME	1	ML	
COLOUR	WHITISH OPAQUE		WHITISH OPAQUE
VISCOSITY	VISCOUS		VISCOUS
pH	**8^H**		5.0 - 7.5
AUTOMMATED SEMEN ANALYSIS, GOLD STANDARD, WHO APPROVED (SQA GOLD)			
TOTAL SPERM CONCENTRATION *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	198	Millions/mL	12 - 16
TOTAL MOTILITY (GRADE A + GRABE B + GRADE C) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	49	%	> = 42.0
RAPIDLY PROGRESSIVE MOTILITY (GRADE A) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	25	%	> = 30.0
SLOWLY PROGRESSIVE MOTILITY (GRADE B) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	18	%	>= 30
NON PROGRESSIVE MOTILITY (GRADE C) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	6	%	<= 1
IMMOTILE *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	51	%	
MORPHOLOGY NORMAL *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	9	%	> = 4.0
MOTILE SPERM CONCENTRATION *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	96.6	Millions/mL	> = 6.0
RAPIDLY PROGRESSIVE MOTILE SPERM CONCENTRATION *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	49.2	Millions/mL	> = 5.0
SLOWLY PROGRESSIVE MOTILE SPERM CONCENTRATION *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	36.5	Millions/mL	
FUNCTIONAL SPERM CONCENTRATION	17.9	Millions/mL	

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Test Name	Value	Unit	Biological Reference interval
by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM			
VELOCITY (AVERAGE PATH VELOCITY) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	53	Mic/sec	> = 5
SPERM MOTILE INDEX (SMI) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	427		> = 80
TOTAL PER EJACULATION			
TOTAL SPERM NUMBER *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	237.6	Millions/ejc.	> = 39.0
TOTAL MOTILE SPERM *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	116	Millions/ejc.	> = 16.0
TOTAL PROGRESSIVE MOTILE SPERM *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	102.8	Millions/ejc.	> = 12.0
TOTAL FUNCTIONAL SPERM *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	21.5	Millions/ejc.	
TOTAL MORPHOLOGY NORMAL SPERM *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	21.4	Millions/ejc.	> = 2.0
MANUAL MICROSCOPY AND MORPHOLOGY			
VITALITY *by MICROSCOPY*	78	%	
RED BLOOD CELLS (RBCs) *by MICROSCOPY*	NOT DETECTED	/HPF	NOT DETECTED
PUS CELLS *by MICROSCOPY*	0-2	/HPF	0 - 5
AGGLUTINATES *by MICROSCOPY*	NOT DETECTED		NOT DETECTED
AMORPHOUS DEPOSITS/ROUND CELLS/DEBRIS *by MICROSCOPY*	NOT DETECTED		NOT DETECTED
BACTERIA *by MICROSCOPY*	NEGATIVE (-ve)		NEGATIVE (-ve)
HEAD DEFECTS *by MICROSCOPY*	33	%	
PIN HEADS *by MICROSCOPY*	9	%	
NECK AND MID-PIECE DEFECTS *by MICROSCOPY*	28	%	
TAIL DEFECTS *by MICROSCOPY*	19	%	

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Test Name	Value	Unit	Biological Reference interval
CYTOPLASMIC DROPLETS *by MICROSCOPY*	1	%	
ACROSOME/NUCLEUS DEFECTS *by MICROSCOPY*	1	%	
CHEMICAL EXAMINATION			
SEMEN FRUCTOSE (QUALITATIVE) ***by QUALITATIVE METHOD USING RESORCINOL***	**POSITIVE (+ve)**		**POSITIVE (+ve)**

INTERPRETATION:

1.Fructose is the energy source for sperm motility. A positive fructose is considered normal.
2.Azoospermia and fructose negative results may indicate an absence of seminal vesicles / vas deferens in the area of seminal vesicles / obstruction of seminal vesicles.

*** End Of Report ***

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