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I.	METALS & ALLO	DYS		
1.	Aluminum & its Alloys	Copper	ASTM E34-11e1 (Cl. 210), IS 504 (Part 3): 2002 (RA 2012)	0.001 % to 20.00 %
		Magnesium	ASTM E34-11e1 (Cl. 232)	0.001 % to 12.0 %
		Silicon	IS 504 (Part 1): 2002 (RA 2012)	0.5 % to 24.0 %
		Iron	ASTM E34-11e1 (Cl. 221), IS 504 (Part 2): 2002 (RA 2012)	0.001 % to 2.0 %
		Nickel	ASTM E34-11e1 (Cl. 243) IS 504 (Part 7): 2002 (RA 2012)	0.001 % to 4.0 %
		Manganese	ASTM E34-11e1 (Cl. 221), IS 504 (Part 5):2002 (RA 2012)	0.001 % to 2.0 %
		Zinc	ASTM E34-11e1 (Cl. 210)	0.001 % to 10.0 %
		Lead	ASTM E34-11e1 (Cl. 188)	0.001 % to 1.00 %
		Titanium	IS 504 (Part 11): 2002 (RA 2012)	0.001 % to 0.5 %
		Chromium	ASTM E34-11e1 (Cl. 199)	0.001 % to 1.00 %
2.	Low Alloy & Carbon Steel	Carbon	ASTM E-415-2015, IS 8811:1998 (RA 2012)	0.03 % to 1.3 %
		Silicon	ASTM E-415-2015, IS 8811:1998 (RA 2012)	0.07 % to 1.8 %
		Manganese	ASTM E-415-2015, IS 8811:1998 (RA 2012)	0.15 % to 2.0 %
		Sulphur	ASTM E-415-2015, IS 8811:1998 (RA 2012)	0.008 % to 0.1 %

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	Low Alloy & Carbon Steel	Phosphorous	ASTM E-415-2015, IS 8811:1998 (RA 2012)	0.008 % to 0.066 %
		Chromium	ASTM E-415-2015, IS 8811:1998 (RA 2012)	0.01 % to 3.25 %
		Molybdenum	ASTM E-415-2015, IS 8811:1998 (RA 2012)	0.01 % to 0.95 %
		Nickel	ASTM E-415-2015, IS 8811:1998 (RA 2012)	0.020 % to 6.5 %
		Aluminum	ASTM E-415-2015, IS 8811:1998 (RA 2012)	0.005 % to 0.6 %
		Copper	ASTM E-415-2015, IS 8811:1998 (RA 2012)	0.01 % to 0.50 %
		Vanadium	ASTM E-415-2015, IS 8811:1998 (RA 2012)	0.005 % to 0.55 %
		Niobium	ASTM E-415-2015, IS 8811:1998 (RA 2012)	0.008 % to 0.5 %
3.	Stainless Steel	Carbon	ASTM E-1086-2014, IS 9879:1998 (RA 2015)	0.010 % to 0.4 %
		Silicon	ASTM E-1086-2014, IS 9879:1998 (RA 2015)	0.15 % to 2.0 %
		Manganese	ASTM E-1086-2014, IS 9879:1998 (RA 2015)	0.35 % to 7.0 %
		Sulphur	ASTM E-1086-2014, IS 9879:1998 (RA 2015)	0.005 % to 0.03 %

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	Stainless Steel	Phosphorous	ASTM E-1086-2014, IS 9879:1998 (RA 2015)	0.005 % to 0.033 %
		Chromium	ASTM E-1086-2014, IS 9879:1998 (RA 2015)	5.0 % to 26 %
		Molybdenum	ASTM E-1086-2014, IS 9879:1998 (RA 2015)	0.02 % to 3 %
		Nickel	ASTM E-1086-2014, IS 9879:1998 (RA 2015)	0.2 % to 36.0 %
		Copper	ASTM E-1086-2014, IS 9879:1998 (RA 2015)	0.02 % to 7.0 %
4.	Steel & Steel	Carbon	IS 228 (Part 1): 1987 (RA 2012)	0.05 % to 2.5 %
	Alloys (Plain, Medium & High Carbon Steel)	Silicon	IS 228 (Part 8): 1989 (RA 2014)	0.05 % to 0.5 %
		Manganese	IS 228 (Part 2): 1987 (RA 2012)	0.10 % to 15.0 %
		Sulphur	IS 6226 (Part 2): 1987 (RA 2014)	0.01 % to 0.25 %
		Phosphorous	IS 228 (Part 3): 1987 (RA 2012)	0.005 % to 0.50 %
		Chromium	IS 228 (Part 6): 1987 (RA 2014)	0.10 % to 31.0 %
		Nickel	IS 228 (Part 5): 1987 (RA 2014)	0.10 % to 22 %
		Molybdenum	IS 228 (Part 7): 1990 (RA 2012)	1 % to 4 %

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II.	CORROSION TES	TS				
1.	Salt Spray Test (NSS) (Cold-Rolled Steel Panels for Testing Paint, Varnish, Conversion Coatings and Related Coating Products, Corrosion products from anodic coatings, Corrosion Products from Cathodic Coatings, Ferrous Pannel/ Component/ Product with Ni- Cr Coating, Galvanized)	Salt Spray Test (NSS)	ASTM B 117-16, ISO-9227-2012, BS EN ISO-10289-2001	Qualitati	ve Test	
III.	BUILDING MATE	RIALS				
1.	Cement (OPC, PPC &	Loss on Ignition (LOI)	IS 4032:1985 (RA 2009)	0.1 % to	10.0 %	
	PSC)	Silica (SiO ₂)	IS 4032:1985 (RA 2009)	16.0 % t	o 40.0 %	
		Alumina (Al ₂ O ₃)	IS 4032:1985 (RA 2009)	3.0 % to	12.0 %	
		Iron Oxide (Fe ₂ O ₃)	IS 4032:1985 (RA 2009)	0.2 % to	10.0 %	
		Sulphuric Anhydride (SO ₃)	IS 4032:1985 (RA 2009)	0.2 % to	5.0.9/	

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	Cement	Soda (Na ₂ O)	IS 4032:1985 (RA 2009)	0.01 % to 2.0 %
	(OPC, PPC & PSC)	Potash (K ₂ O)	IS 4032:1985 (RA 2009)	0.01 % to 2.0 %
		Chlorides (Cl)	IS 4032:1985 (RA 2009)	0.01 % to 0.5 %
		Lime (CaO)	IS 4032:1985 (RA 2009)	30.0 % to 70.0 %
		Magnesia (MgO)	IS 4032:1985 (RA 2009)	0.2 % to 10.0 %
		Insoluble Residue (IR)	IS 4032:1985 (RA 2009)	0.2 % to 40.0 %
2.	Fly Ash	Loss on Ignition (LOI)	IS 1727:1967 (RA 2008) ASTM C311/C311M-13	0.2 % to 10.0 %
		Silica (SiO ₂)	IS 1727:1967 (RA 2008) ASTM C311/C311M-13 ASTM C114:2015	20 % to 70.0 %
		Alumina (Al ₂ O ₃)	IS 1727:1967 (RA 2008) ASTM C311/C311M-13 ASTM C114:2015	5 % to 35.0 %
		Iron Oxide (Fe ₂ O ₃)	IS 1727:1967 (RA 2008) ASTM C311/C311M-13 ASTM C114:2015	0.2 % to 10.0 %
		Lime (CaO)	IS 1727:1967 (RA 2008)	0.1 % to 20.0 %
		Magnesia (MgO)	IS 1727:1967 (RA 2008)	0.02 % to 8.0 %
		Sulphuric Anhydride (SO ₃)	IS 1727:1967 (RA 2008) ASTM C311/C311M-13 ASTM C114:2015	0.2 % to 5.0 %

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	Fly Ash	Soda (Na ₂ O)	IS : 1727-1967 (RA 2008), ASTM C311/C311M-13, ASTM C114:2015	0.01 % to 2.0 %
		Potash (K ₂ O)	IS : 1727-1967 (RA 2008), ASTM C311/C311M-13, ASTM C114:2015	0.01 % to 2.0 %
		Available Alkali (Na ₂ O)	IS 3812 (Part 1): 2013 (Annex-C)	0.01 % to 2.0 %
		Chlorides (Cl)	IS 4032:1985 (RA 2009)	0.001 % to 0.5 %
3.	Micro Silica, Silica Fumes	Loss on Ignition (LOI)	IS 1727:1967 (RA 2008) ASTM C311/C311M-13	0.2 % to 10.0 %
		Moisture	IS 15388:2003 (RA 2007) ASTM C311/C311M-13	0.1 % to 5.0 %
		Silica (SiO ₂)	IS 1727:1967 (RA 2008) ASTM C311/C311M-13	50 % to 95.0 %
		Soda (Na ₂ O)	IS: 4032-1985 (RA 2009) ASTM C311/C311M-13	0.01 % to 2.0 %
4.	Gypsum	Loss on Ignition (LOI)	IS 2547 (Part 1): 1976 (RA 2007) (App-B)	1.0 % to 12.0 %
		Sulphates	IS 1288:1982 (RA 2010)	25 % to 60.0 %
		Lime (CaO)	IS 1288:1982 (RA 2010)	15 % to 40.0 %
		Magnesia (MgO)	IS 2547 (Part 1): 1976 (RA 2007) (App-A)	0.2 % to 0.5 %
		Soda (Na ₂ O)	IS 2547 (Part 1): 1976 (RA 2007) (App-A)	0.2 % to 0.5 %

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	Gypsum	Free Lime	IS 2547 (Part 1): 1976 (RA 2007) (App-C)	2 % to 15 %
5.	Concrete	Chlorides	IS 14959 (Part 2): 2001 (RA 2011)	0.01 % to 1.0 %
		Sulphates	BS 1881 (Part 124): 2015	0.01 % to 1.0 %
6.	Admixture	Dry Material Content	IS 9103:1999 (RA 2013)	1 % to 60.0 %
		Chlorides	IS 6925:1973 (RA 2008)	0.01 % to 1.0 %
		Sulphates	IS 4032:1985 (RA 2009)	0.05 % to 5.0 %
		Ash Content	IS 9103:1999 (RA 2013)	0.1 % to 20.0 %
		pH	IS 9103:1999 (RA 2013)	4 % to 13 %
		Relative Density	IS 9103:1999 (RA 2013)	1 to 1.5
7.	Aggregates	Alkali Aggregate Reactivity	IS 2386 (Part VII): 1963 (RA 2016) (Cl.3)	0.2 millimoles/lit to 2500 millimoles/lit
8.	Granulated Slag	Silica (SiO ₂)	IS 4032:1985 (RA 2009)	16 % to 40 %
		Alumina (Al ₂ O ₃)	IS 4032:1985 (RA 2009)	3 % to 25 %
		Iron Oxide (Fe ₂ O ₃)	IS 4032:1985 (RA 2009)	0.2 % to 10 %
		Lime (CaO)	IS 4032:1985 (RA 2009)	30 % to 70 %
		Magnesia (MgO)	IS 4032:1985 (RA 2009)	0.2 % to 25.0 %
		Manganese Oxide (MnO)	IS 4032:1985 (RA 2009)	0.2 % to 10.0 %
		Moisture	IS 4032:1985 (RA 2009)	0.1 % to 5.0 %
		Insoluble Matter	IS 4032:1985 (RA 2009)	0.2 % to 50.0 %

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III.	SOLID FUELS			
1.	Coal & Coke	Proximate Analysis		
		Moisture	IS 1350 (Part 1): 1984 (RA 2013)	0.5 % to 50 %
		Ash	IS 1350 (Part 1): 1984 (RA 2013)	0.5 % to 60 %
		Fixed Carbon	IS 1350 (Part 1): 1984 (RA 2013)	0.5 % to 60 %
		Volatile Matter	IS 1350 (Part 1): 1984 (RA 2013)	0.5 % to 60 %
		Gross Calorific Value	IS 1350 (Part 2): 1975 (RA 2015)	200-10000 Kcal/kg
IV.	WATER			
1.	Water (Drinking Water, Water for Food, Water for Ice, Mineral Water)	Colour	IS 3025 (Part 4): 1983 (RA 2012) APHA-2120-2012 (22nd Edition)	1 Hazen units to 500 Hazen units
		Odor	IS 3025 (Part 5): 1983 (RA 2012) APHA-2150-2012 (22nd Edition)	Qualitative
		Taste	IS 3025 (Part 7 & Part 8): 1984 (RA 2012)	Qualitative
		Turbidity	IS 3025 (Part 10): 1984 (RA 2012) APHA-2130-B-2012 (22nd Edition)	0.2 NTU to 30 NTU
		pH Value	IS 3025 (PART 11): 1983 (RA 2012)	1-14
		Total Hardness	IS 3025 (Part 21): 2009 (RA 2014) APHA-2340-C-2012 (22nd Edition)	5 mg/l to 1000 mg/l

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Water (Drinking Water, Water for Food, Water for Ice, Mineral Water)	Iron	IS 3025 (Part 53): 2003 (RA 2014) (Cl.6) APHA 3500 Fe-B-2012 (22nd Edition)	0.01 mg/l to 2 mg/l
,, ato2)	Chloride	IS 3025 (Part 32): 1988 (RA 2014)	10 mg/l to 1000 mg/l
	Fluoride	APHA 4500 FD 2012 (22nd Edition) IS 3025 (Part 60): 2008 (RA 2013)	0.05 mg/l to 20 mg/l
	Sulphate	IS 3025 (Part 24): 1986 (RA 2014) (Cl.4) APHA 4500-E:22nd Ed2012	2 mg/l to 2000 mg/l
	Silica	IS 3025 (Part 35): 1988 (RA 2014)	0.1 mg/l to 500 mg/l
	Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2012) APHA 2540-B:22nd Ed2012	1 mg/l to 2000 mg/l
	Calcium	IS 3025 (Part 40): 1991 (RA 2009)	0.01 mg/l to 500 mg/l
	Magnesium	IS 3025 (Part 46): 1994 (RA 2009)	0.005 mg/l to 200 mg/l
	Alkalinity	IS 3025 (Part 23): 1986 (RA 2014) APHA 2320-B:22nd Ed2012	2 mg/l to 100 mg/l
	Copper	IS 3025 (Part 42): 1992 (RA 2014)	0.03 mg/l to 2 mg/l
	Water (Drinking Water, Water for Food, Water for	Water (Drinking Water, Water for Food, Water for Ice, Mineral Water) Chloride Fluoride Sulphate Silica Total Dissolved Solids Calcium Magnesium Alkalinity	Water (Drinking Water, Water for Food, Water for Ice, Mineral Water) Iron IS 3025 (Part 53): 2003 (RA 2014) (Cl.6) Food, Water for Ice, Mineral Water) Chloride IS 3025 (Part 32): 1988 (RA 2014) Fluoride APHA 4500 FD 2012 (22nd Edition) IS 3025 (Part 32): 1988 (RA 2014) Sulphate IS 3025 (Part 60): 2008 (RA 2013) IS 3025 (Part 60): 2008 (RA 2013) Silica IS 3025 (Part 24): 1986 (RA 2014) (Cl.4) APHA 4500-E:22nd Ed2012 IS 3025 (Part 35): 1988 (RA 2014) Total Dissolved Solids IS 3025 (Part 16): 1984 (RA 2012) APHA 2540-B:22nd Ed2012 Calcium IS 3025 (Part 40): 1991 (RA 2009) Magnesium IS 3025 (Part 46): 1994 (RA 2009) Alkalinity IS 3025 (Part 23): 1986 (RA 2014) APHA 2320-B:22nd Ed2012 Copper IS 3025 (Part 42): 1992

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	Water (Drinking Water, Water for	Manganese	IS 3025 (Part 59): 2006 (RA 2012)	0.05 mg/l to 0.5 mg/l
	Food, Water for Ice, Mineral Water)	Cadmium	IS 3025 (Part 41): 1992 (RA 2014)	0.002 mg/l to $5 mg/l$
		Nickel	IS 3025 (Part 54): 2003 (RA 2014)	0.01 mg/l to 2 mg/l
		Chromium	IS 3025 (Part 52): 2003 (RA 2014)	0.01 mg/l to 0.5 mg/l
		Lead	IS 3025 (Part 47): 1994 (RA 2014)	0.005 mg/l to $10 mg/l$
		Residual Free Chlorine	IS 3025 (Part 26): 1986 (RA 2014) APHA 4520-2012 (22nd Edition)	0.01 mg/l to 10 mg/l
2.	Reagent Grade Water	Colour retention of KMnO ₄	IS 1070:1992 (RA 2013)	1 Sec to 3600 Sec
		Specific Conductivity	IS 3025 (Part 14): 1984 (RA 2013) APHA 2510-2012 (22nd Edition)	0.1 μmhos/cm to 25 μmhos/cm
		pH Value	IS 3025 (Part 11): 1983 (RA 2012)	1 to 14
		Total Solids/Non Volatile Residue	IS 3025 (Part 16): 1984 (RA 2012) APHA 2540-B:22nd Ed2012	10 mg/l to 100 mg/l
		Silica	IS 3025 (Part 35): 1988 (RA 2014)	0.01 mg/l to 10 mg/l

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			APHA 1995-2012 (22nd Edition)	
3.	Battery Water	Non-Volatile Residue	IS 1069: 1993 (RA 2013)	5 mg/l to 20 mg/l
		Chloride	IS 3025 (Part 32): 1988 (RA 2014)	10 mg/l to 1000 mg/l
		pH Value	IS 3025 (Part 11): 1983 (RA 2012)	1 to 14
		Total Hardness	IS 3025 (Part 21): 2009 (RA 2014) APHA-2340-C-2012 (22nd Edition)	1 mg/l to 100 mg/l
		Iron	IS 3025 (Part 53): 2003 (RA 2014) (Cl.6) APHA 3500 Fe-B-2012 (22nd Edition)	0.01 mg/l to 5 mg/l
		Electrical Conductivity	IS 3025 (Part 14): 1984 (RA 2013) APHA 2510- 2012 (22nd Edition)	1 μmhos/cm to 100 μmhos/cm
		Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2012) APHA 2540-B:22nd Ed2012	5 mg/l to 100 mg/l
4.	Water for Construction	pH Value	IS 3025 (Part 11): 1983 (RA 2012)	1 to 14
		Inorganic Solids	IS 3025 (Part 18): 1984 (RA 2012)	10 mg/l to 5000 mg/l
		Organic Solids	IS 3025 (Part 18): 1984 (RA 2012)	10 mg/l to 500 mg/l

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	Water for Construction	Volume of 0.02N H ₂ SO ₄	IS 3025 (Part 23): 1986 (RA 2014)	0.1 ml to	50 ml
		required to neutralize 100 ml sample of water using Mix Indicator			
		Volume of 0.02N NaOH required to neutralize 100 ml sample of water using Phenolpthalein	IS 3025 (Part 22): 1986 (RA 2014)	0.1 ml to	25 ml
		Chloride	IS 3025 (Part 32): 1988 (RA 2009)	10 mg/l	to 2000 mg/l
		Sulphate	IS 3025 (Part 24): 1986 (RA 2009)	5 mg/l to	500 mg/l
		Suspended Matter	IS 3025 (Part 17): 1984 (RA 2012)	5 mg/l to	2000 mg/l
5.	Water for Swimming Pools	pH Value	IS 3025 (Part 11): 1983 (RA 2012)	1 to 14	
		Total Alkalinity	IS 3025 (Part 23): 1986 (RA 2014)	20 mg/l	to 1000 mg/l
		Total Residual Chlorine	IS 3025 (Part 26): 1986 (RA 2014)	0.01 mg	/l to 10 mg/l
		Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2012)	10 mg/l	to 3000 mg/l

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		Iron	IS 3025 (Part 53): 2003 (RA 2014) (Cl.6)	0.01 mg/l to $2 mg/l$
		Chloride	IS 3025 (Part 32): 1988 (RA 2014)	0.5 mg/l to 1000 mg/l
	Water for Swimming Pools	Colour	IS 3025 (Part 4): 1983 (RA 2012)	1 Hazen Units to 50 Hazen Units
		Odor	IS 3025 (Part 5): 1983 (RA 2012)	Qualitative
		Taste	IS 3025 (Part 8): 1984 (RA 2012)	Qualitative
		Turbidity	IS 3025 (Part 10): 1984 (RA 2012)	0.2 NTU to 30 NTU
6.	Effluent Water, Waste Water	COD	IS 3025 (Part 58): 2006 (RA 2012) APHA 5220B 2012 (22nd Edition)	5 mg/l to 10000 mg/l
		Dissolve Oxygen	IS 3025 (PART 38) 1989 (R-2014)/APHA 4500-C-2012 (22nd Edition)	1 mg/l to 10 mg/l
		Oil and Grease	IS 3025 (Part 39): 1991 (RA 2014) APHA 5520-2012 (22nd Edition)	1 mg/l to 5000 mg/l
		BOD	IS 3025 (Part 44): 1993 (RA2014) APHA 5210-2012 (22nd Edition)	5 mg/l to 10000 mg/l
		Total Dissolved Solids	IS 3025 (Part 16): 1984	10 mg/l to 20000 mg/l

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			(RA 2012)	
		Total Suspended Solids	IS 3025 (Part 15): 1984 (RA 2014) APHA 2540-2012 (22nd Edition)	1 mg/l to 10000 mg/l
	Effluent Water, Waste Water	pH Value	IS 3025 (PART 11) 1983 (RA 2012)	1 to 14
		Total Chromium	APHA-3500-Cr-B-2012 (22nd Edition), IS 3025 (Part 52): 2003 (RA 2014)	0.05 mg/l to 500 mg/l