 Discovery Labs	STANDARD OPERATING PROCEDURE			
	SOP No.:	SOP-QC-037-02	Effective Date:	01.01.2017
	Supersedes:	SOP-QC-037-01	Next Review Date:	31.12.2019
	Department:	Quality Control	Page:	1 of 4
TITLE: OPERATION AND CALIBRATION OF DIGITAL PH METER				

1.0 PURPOSE:

To describe the operation and Calibration procedure for the pH Meter.

2.0 SCOPE:

This procedure is applicable to the digital pH Meter of Laboratory.

Make : Hanna Instruments

Model : HI2020-02

Instrument No. : DIPL/QC/INS/pH/002

3.0 RESPONSIBILITY:

3.1 Analyst-QC is responsible to follow this SOP.

3.2 Head-QC/Designee is responsible for ensuring implementation of this SOP.

3.3 Head-QA/Designee is responsible for monitoring overall compliance of this SOP.

4.0 DEFINITIONS:

Nil.

5.0 PROCEDURE:

5.1 OPERATION:

5.1.1 Keep the area neat and clean.

5.1.2 Switch on the instrument and wait for 5 minutes to stabilize the instrument.
Standardize with standard buffer solution.

5.1.3 Remove the electrode from beaker, clean with water and wipe with tissue paper to remove the water droplets & on the surface of the electrode.


5.1.4 Immerse the electrode in the solution whose pH to be measured.

5.1.5 Note down the pH after disappear of the Symbol 

5.2 **Precautions:** Use always freshly HPLC water. Dip the electrode in HPLC water always.


5.3 CALIBRATION:

	Prepared by	Reviewed by	Checked by
Sign & Date			
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Department	Quality Control	Quality Control	Quality Assurance

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- 5.3.1 Switch on the pH meter before use.
- 5.3.2 Take out the electrode, wash with distilled water and clean the electrode with Tissue paper
- 5.3.3 Press the “CAL MODIFY” button
- 5.3.4 7.01 is display at bottom of the screen.
- 5.3.5 Put the electrode in pH 7.0 buffer solution.
- 5.3.6 Wait for up to “CFM” is display on the screen
- 5.3.7 Press the “GLP CFM” button
- 5.3.8 9.18 is display at bottom of the screen.
- 5.3.9 Put the electrode in pH 9.20 buffer solution.
- 5.3.10 Wait for up to “CFM” is display on the screen
- 5.3.11 Press the “GLP CFM” button
- 5.3.12 10.01 is display at bottom of the screen.
- 5.3.13 Put the electrode in pH 10.00 buffer solution.
- 5.3.14 Wait for up to “CFM” is display on the screen
- 5.3.15 Press the “GLP CFM” button.
- 5.3.16 1.68 is display at bottom of the screen.
- 5.3.17 Put the electrode in pH 1.68 buffer solutions.
- 5.3.18 Wait for up to “CFM” is display on the screen
- 5.3.19 Press the “GLP CFM” button.
- 5.3.20 4.01 is display at bottom of the screen.
- 5.3.21 Put the electrode in pH 4.00 buffer solution.
- 5.3.22 Wait for up to “CFM” is display on the screen
- 5.3.23 Press the “GLP CFM” button.
- 5.3.24 After complete the calibration check the all pH buffer solution and note down the results in pH calibration record

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5.3.25 All pH buffers give observed pH values within ± 0.05 pH unit.

5.3.26 Take out the electrode, wash with HPLC water and clean the electrode with Tissue Paper.

5.3.27 **Frequency:** Shift wise.

5.4 ACCEPTANCE CRITERIA:

pH values are vary in different temperature conditions. The standard pH values at different Temperature level are tabulated in Table-1

Table-1

Temperature (°C)	pH Buffer 1.68	pH Buffer 4.00	pH Buffer 7.00	pH Buffer 9.20	pH Buffer 10.00
20	1.60	4.00	7.03	9.20	10.06
25	1.68	4.01	7.01	9.18	10.01
30	1.69	4.02	7.00	9.14	9.97
35	1.69	4.03	6.99	9.10	9.93
40	1.70	4.04	6.98	9.07	9.89
45	1.70	4.05	6.98	9.04	9.86
Tolerance	± 0.05	± 0.05	± 0.05	± 0.05	± 0.05


6.0 FORMATS / ANNEXURE(S):

6.1 pH Meter log book : QC048-FM086

6.2 pH Daily calibration record : QC037-FM072

7.0 CHANGE HISTORY:

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Revision No.	Effective Date	Details of Revision	Ref CCF No.
00	15.04.2015	New SOP introduced	--
01	01.01.2017	SOP format changed make to in line with SOP-QA-001-04.	QC-CRF-025/16

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