PRIVATE SECONDARY EDUCATION AUTHORITY

MONITORING OF NORMS AND STANDARDS IN A FACILITY RECKONED AS:

CHEMISTRY LABORATORY UP TO GRADE 11 – Year 2021/2022

Subject Appellation and Level:

- **CHEMISTRY Grades 10 & 11 - CIE SC/OL syllabus code: 5070** ☐
- **SCIENCE Up to Grade 9 & 9+(EP) (the *Chemistry* component only in schools where there is no Science Junior Laboratory) - NCF** ☐

Name of School : _____ Date of Verification : _____

Is the Lab a separate facility? ___ If no, where is the equipment provided? _____

Is the facility New / Relocated / Existing / Upgraded ? _____

Number of sections and students using this facility:

	Extended Program				Regular				
Grade	**7**	**8**	**9**	**9+**	**7**	**8**	**9**	**10**	**11**
No. of Sections									
No. of Students									
No. of Groups									

Educator in Charge: _____ Qualifications:_____

Specialist Room Attendant: _____ Qualifications: _____

IMPORTANT NOTES:

The following conditions should be fulfilled to ensure a reasonable standard:

- **The room and floor area provided should be appropriate.**
- **A minimum score of 75 % should be obtained in each of the four Sections A to D.**
- **Compulsory items in Section D, highlighted in bold characters, should be provided.**
- **Record of use of the Lab. should be kept as required.**

Minimum requirements for a class of 20 students are specified. However, in case of need provision should be made to accommodate up to 4 additional students.

(A) PHYSICAL FACILITIES – weightage: 30%						
Item	**Description**	**Requirements**	**Marks Per Unit**	**Marks Item-wise**	**Existing**	**Score (for PSEA use only)**
1. Floor Area And Room ***NOTES:** a) For existing *Labs*, the previously approved Floor Area shall be accepted and rated pro-rata. b) For new Labs, the specified floor area shall be required.	**Concrete Building**	An area of 60 m^2 is required*	75/m^2	4500		
	CONDITIONS OF ROOM:			1500 **(Pro-rata on area)**		
	Ceiling	Plastered & Crack-free	10%			
	Walls	Crack-free Plastered & painted	10%			
	Flooring	Flat & tiled /painted	10%			
	Shape	Convenient	10%			
	Set Up	Conducive	10%			
	Cleanliness	Maintained	10%			
	Proper Storage and Classification	Indexing & Accessibility	10%			
	Lighting	Adequate	10%			
	Ventilation	Natural/ Assisted	10%			
	Utilities	Water/Gas/ Electricity	10%			
2. Store and Preparation Room ***NOTE:** For existing *Store and Preparation Rooms,* the previously approved Floor Area shall be accepted and rated pro-rata.	**Concrete Building**	An area of 10 m^2 is required*	75/m^2	750		
	CONDITIONS OF ROOM:			250 **(Pro-rata on area)**		
	Furniture	Appropriate	10%			
	Sink	Functional	10%			
	Cleanliness	Maintained	10%			
	Proper Storage and Classification	Indexing & Accessibility	20%			
	Lighting	Adequate	10%			
	Ventilation	Natural/ Assisted	20%			
	Utilities	Water/Gas/ Electricity	20%			

Item	Description	Quantity	Marks Per Unit	Marks	Existing	Score (for PSEA use only)
3. Furniture & Accessories ***<u>NOTE</u>: Worktables** should be of Laboratory type and fitted with taps, sinks, bunsen burners and power supply. ****<u>NOTE</u>: Demonstration Table** is rated only if it has ALL of the 4 facilities listed at a) to d)	i) Work Tables*	15 m^2	30	450		
	ii) Stools	20	21	420		
	iii) Demonstration Table (2m x 1m)**	$2m^2$	110	220		
	a) Tap and Sink *(Tap: Graded Type)*	1 Set	110	110		
	b) Bunsen Burner with gas supply	1	110	110		
	c) Power Point – *attached or nearby*	1	110	110		
	d) 20 cm higher than work tables	-	110	110		
***<u>NOTE:</u> Conditions** Problems identified with the conditions of **Furniture and Accessories**, if any, shall be evaluated on how far they affect teaching and learning on a scale of 1 to 10 before effecting deductions on marks for conditions. The marks may be totally forfeited in case of even a single grave problem with conditions.	iv) Chair for Teacher	1	150	150		
	v) White Board *(Size: 243cm X 105cm) below size not rated*	1	200	200		
	vi) Tap *(graded type)* & Sink *(of appropriate material)*	8 Sets	90	720		
	vii) Power Points (free)	2	80	160		
	viii) Wall Clock	1	100	100		
	ix) Shelves/Cupboards	Sufficient for Storage	300	300		
	Conditions i) to ix)*			800		
			TOTAL Section A	**10960**		Score sect A

Actual Marks Scored on Physical Facilities (Section A): = **<u>Score sect A</u> x 12000 = _____**
10960

(B) INSTRUCTIONAL TOOLS & RECORDS – weightage: 30 %

1. Practicals	Number of Sessions	20	250	5000		

NOTE: Reckoned pro-rata for the current academic year - max. 20 per class or group over 8.5 months.

Requirements:

a) 20 practical sessions per class for Grades 10 & 11 in the academic year spread over all three school terms.

b) 7 practical sessions per class for Grades EP & Reg. 7, 8 and 9 in the academic year.

c) Records to be signed, kept class-wise and in the lab.

Grade	**Ext. Prg.**				**Regular**				
Class/Group	**7**	**8**	**9**	**9+**	**7**	**8**	**9**	**10**	**11**
A									
B									
C									
D									
E									
Total (x 3 for EP & Reg. Gds. 7-9)									
Average (Gradewise)									
Overall Average									
Notes for Guidance:	*Grades EP & Reg. 7, 8 and 9 to be reckoned only if school does <u>not</u> have a Science Junior Lab.*								

2. Audio Visual Sessions	Number of Sessions	10	200	2000		

NOTE: Reckoned pro-rata for the current academic year - max. 10 per class or group over 8.5 months.

Requirements:

a) 10 Audio Visual sessions per class for Grades 10 & 11 in the academic year spread over all three school terms.

b) 4 Audio Visual sessions per class for Grades EP & Reg. 7, 8 & 9 in the academic year.

c) Records to be signed, kept class-wise and in the lab.

d) Audio Visual Sessions - (video lessons, Computer Assisted Learning)

Grade	**Ext. Prg.**				**Regular**				
Class/Group	**7**	**8**	**9**	**9+**	**7**	**8**	**9**	**10**	**11**
A									
B									
C									
D									
E									
Total (x 3 for EP & Reg. Gds. 7-9)									
Average (Gradewise)									
Overall Average									
Notes for Guidance:	*Grades EP & Reg.7, 8 & 9 to be reckoned only if school does <u>not</u> have a Science Junior Lab.*								

Item	Description	Quantity	Marks Per Unit	Marks	Existing	Score *(for PSEA use only)*
3. Time-Table	Time-Table of Practicals *(with school seal and year)*	1 displayed	100	100		
4. Stock-Book	Up to date, signed and with school seal. Renewal of stock should be highlighted.	1	150	150		
5. Teaching and Learning Aids **NOTES:** **i) Charts topics** 1. Periodic Table 2. Carbon Cycle 3. Water Cycle 4. Nitrogen Cycle 5. Pollution (air, water etc.) 6. Global Warming 7. Changes of State 8. Sources of Energy (Renewable / Non Renewable) 9. Hazardous Chemicals 10. Disposal of Hazardous Chemicals 11. Acids & Bases **ii) Charts size** Charts to be printed and of minimum size – A3. Contents should be readable with drawings and bold characters.	i) Reference Books for Theory *(Published in the past 3 years)* ii) Reference Books for Practicals *(Published in the past 5 years)* iii) Wall Charts *(re: list of topics & size in the first column)* iv) Multimedia a) PC/Laptop b) Internet c) LCD Projector* d) Screen* ***NOTE**: A connectable LED TV of 55" may replace items c) and d)*	5 5 11 1 Connected 1 1	100 100 40 200 100 240 70	500 500 440 200 100 240 70		
			TOTAL Section B	**9300**		Score sect B

Actual *Marks Scored* On Instructional Tools & Records (Section B) **= Score sect B / 9300 X 12000 =_____**

(C) SAFETY ITEMS – weightage: 10%

Item	Description	Quantity	Marks Per Unit	Marks	Existing	Score *(for PSEA use only)*
1. First Aid Kit	Equipped to treat cuts, burns and eye problems	1	350	350		
2. Fire Extinguisher	Capacity: 2 L or 2 Kg (serviced on time)	1	400	400		
3. Fire Blanket	0.9m x 0.9 m	1	350	350		
4. Emergency Exit *(clearly indicated)*	Additional door for quick exit in case of emergency	1	400	400		
5. Safety Goggles	For protection of eyes while conducting practicals.	20	20	400		
6. Safety Charts (permanently affixed at appropriate places)	Clear instructions about safety precautions • Exit signs • In case of fire • Dangerous chemicals; etc	5	80	400		
7. i) Main Switch /Circuit Breaker ii) ELCB/RCD	Separate for the Chemistry Lab. and located at an accessible place inside the Lab.	1 1	350 400	350 400		
8. Gas Conductors (**NOTE***: Gas tanks to be kept preferably outside the building with an internal gas switch)*	Rubber tubing connected to Bunsen Burners should be replaced before expiry date stated thereon.	10	60	600		
9. Storage of Chemicals	Safe storage, organisation and accessibility of chemicals, especially hazardous ones	Safe Storage Organisation Accessibility	100 100 100	100 100 100		
			TOTAL Section C	**3950**		Score sect C

Actual *Marks Scored* On Safety Items (Section C): **= Score sect C x 4000 = _____**
3950

(D) EQUIPMENT AND CONSUMABLES – weightage: 30 %

Item	Equipment	Quantity Required	Marks Per Unit	Marks Item-wise	Existing	Score *(for PSEA use only)*
1.	Ammeter 0 – 5 A	5	16	80		
2.	Aspirator 10 dm^3 glass/plastic	2	20	40		
3.	Balance beam + Box of weights	1	20	20		
4.	**Balance electronic (2 d.p.)**	**1**	**120**	**120**		
5.	Beakers 100 cm^3	30	4	120		
6.	Beakers 250 cm^3	30	4	120		
7.	Beakers 500 cm^3	10	12	120		
8.	Beakers 1000 cm^3	2	60	120		
9.	Beakers 2000 cm^3	2	40	80		
10.	Beehive shelf	2	20	40		
11.	Boats porcelain	4	10	40		
12.	Boiling tube	10	12	120		
13.	Boiling Chips	1 pk	40	40		
14.	Bosses for metal stand	10	8	80		
15.	Bottles 250 cm^3 dilute H_2SO_4	10	12	120		
16.	Bottles 250 cm^3 dilute HCl	10	12	120		
17.	Bottles 250 cm^3 dilute HNO_3	10	12	120		
18.	Bottles 250 cm^3 aq NaOH	10	12	120		
19.	Bottles 250 cm^3 aq NH_4OH	10	12	120		
20.	Bottles 250 cm^3 aq KI	10	12	120		
21.	Bottles 250 cm^3 Lime Water	10	12	120		
22.	Bottles 250 cm^3 aq $AgNO_3$	10	12	120		
23.	Bottles 250 cm^3 aq $Ba(NO_3)_2$	10	12	120		
24.	Bottles 250 cm^3 aq $BaCl_2$	2	60	120		
25.	Bottles 250 cm^3 aq $K_2Cr_2O_7$	10	12	120		
26.	Bottles 250 cm^3 aq $KMnO_4$	2	60	120		
27.	Bottles dropping for indicator	5	8	40		
28.	Bottles Reagent 250cm^3 (empty)	80	1	80		
			Sub - Total	**2700**		

Item	Equipment	Quantity Required	Marks Per Unit	Marks Item-wise	Existing	Score *(for PSEA use only)*
29.	Bottles Reagent 100/125cm^3 (empty)	40	1	40		
30.	Bottles wide neck (for solids)	10	4	40		
31.	Brush burette	5	8	40		
32.	Brush test tube	20	2	80		
33.	Bucket (10L)	2	40	40		
34.	Bunsen Burner tap – 2 way (in use)	5	24	120		
35.	**Bunsen Burners (in use)***	**10**	**12**	**120**		
36.	Burette Stands	25	3.2	80		
37.	**Burettes 50 cm^3 + Jet + rubber tubing**	**25**	**3.2**	**80**		
38.	Capillary tubes (pieces) for M.pt	50	0.8	40		
39.	Carbon Electrodes	4	10	40		
40.	Chromatography paper	1 reel	80	80		
41.	Clamps for metal stand	10	8	80		
42.	Clips	25	1.6	40		
43.	Condenser (water), liebig	2	20	40		
44.	Copper Wires – Insulated (2 colours)	10 m each	20	40		
45.	Copper Foil	2 Sheets	20	40		
46.	Cork borer set	1	40	40		
47.	Corks bark assorted	100	0.4	40		
48.	Corks rubber assorted	50	0.8	40		
49.	Crocodile clips	10	4	40		
50.	Crucible + lid	20	2	40		
51.	Cylinder measuring 10 cm^3	10	8	80		
52.	Cylinder measuring 25 cm^3	10	8	80		
53.	Cylinder measuring 50 cm^3	10	8	80		
54.	Cylinder measuring 100 cm^3	10	8	80		
55.	Cylinder measuring 250 cm^3	10	8	80		
56.	Cylinder measuring 500 cm^3	5	16	80		
57.	Cylinder measuring 1000 cm^3	2	40	80		
			Sub - Total	**1800**		

***Bunsen burner will not be rated if gas conductor(s) do not bear clearly the expiry date or are expired.**

Item	Equipment	Quantity Required	Marks Per Unit	Marks Item-wise	Existing	Score *(for PSEA use only)*
58.	Delivery Tube	10	4	40		
59.	Deflagrating spoon	2	20	40		
60.	Desiccator (medium)	1	40	40		
61.	Dropping pipettes with teats	20	2	40		
62.	Evaporating Basin	2	20	40		
63.	Filter paper (9 cm diameter)	5 pk	16	80		
64.	Filter paper (12.5 cm diameter)	5 pk	16	80		
65.	Flask conical 100 cm^3	20	6	120		
66.	Flask conical 250 cm^3	30	4	120		
67.	Flask conical 250 cm^3 with side arm	2	20	40		
68.	Flask distillation 250 cm^3	2	40	80		
69.	Flask distillation 500 cm^3	2	40	80		
70.	Flask flat bottom 250 cm^3	5	8	40		
71.	Flask flat bottom 500 cm^3	5	8	40		
72.	Flask round bottom 500 cm^3	5	16	80		
73.	Flask volumetric 100 cm^3	10	8	80		
74.	Flask volumetric 250 cm^3	2	40	80		
75.	Flask volumetric 1000 cm^3	2	40	80		
76.	Fractionating column	1	40	40		
77.	Funnel plastic 7.5 cm diameter	20	2	40		
78.	Funnel separating	2	20	40		
79.	Funnel tap	10	4	40		
80.	Funnel thistle	2	20	40		
81.	Gas Lighter	2	40	80		
82.	Gas jar with cover	5	8	40		
83.	Glass cutter	1	40	40		
84.	Glass rod assorted	30	4	120		
85.	Glass tubing assorted	20	4	80		
86.	Gloves rubber	20	2	40		
87.	Iron Nails (Small)	Adequate quantity	40	40		
			Sub - Total	**1840**		

Item	Equipment	Quantity Required	Marks Per Unit	Marks Item-wise	Existing	Score *(for PSEA use only)*
88.	Metal stands	10	8	80		
89.	Molecular Model Kit	1	40	40		
90.	Mortar and pestle	2	20	40		
91.	Pipe clay triangles	20	2	40		
92.	Pipette 10 cm^3 with bulb	20	4	80		
93.	Pipette 25 cm^3 with bulb	20	4	80		
94.	Pipette fillers	10	8	80		
95.	Pipette graduated (10ml)	10	8	80		
96.	Porcelain pieces	1 pk	40	40		
97.	Platinum/Nichrome wire pieces	2	20	40		
98.	**Power supply (12V dc supply, 2 V steps)**	**5**	**24**	**120**		
99.	Quick-Fit set for simple exp.	1	40	40		
100.	Rubber bung (assorted)	10	4	40		
101.	Rubber tubing (7 mm)	10 m	8	80		
102.	Rubber tubing (10mm)	5 m	16	80		
103.	Spatula polythene/metal	10	8	80		
104.	**Stop watches/clocks**	**10**	**12**	**120**		
105.	Test tube fusion Pyrex	25	3.2	80		
106.	Test tube racks	20	6	120		
107.	Test tubes 125 X 16 Pyrex rimmed	200	0.4	80		
108.	Test tubes 150 X 24 Pyrex rimmed	50	0.8	40		
109.	Test tube holders	20	4	80		
110.	**Thermometer (- 10 ^{0}C - 110 ^{0}C) X 1˚C**	**25**	**3.2**	**80**		
111.	Thermometer - alcohol	1	80	80		
112.	Thermometer - digital	1	80	80		
113.	Thermometer - clinical	1	80	80		
114.	Tiles porcelain white	20	4	80		
115.	Trays plastic	5	8	40		
116.	Tripod stands	20	4	80		
			Sub - Total	**2080**		

Item	Equipment	Quantity Required	Marks Per Unit	Marks Item-wise	Existing	Score *(for PSEA use only)*
117.	Trough (Glass or Metal)	2	20	40		
118.	Tube U-shaped	2	20	40		
119.	Variable resistor	5	8	40		
120.	Voltameter Hoffmann's	2	40	80		
121.	Wash bottles Polythene 250 cm^3	10	8	80		
122.	Watch glass	20	2	40		
123.	Weighing bottles, polyethene	10	4	40		
124.	Wire Gauze ceramic center	25	3.2	80		
125.	Y-tube	2	20	40		

Item	Chemicals	Quantity Required	Marks Per Unit/100g/ $100cm^3$	Marks Item-wise	Existing	Score *(for PSEA use only)*
126.	Aluminium nitrate	500 g	8	40		
127.	Aluminium sulfate	500 g	8	40		
128.	Aluminium powder	100 g	60	60		
129.	**Ammonia solution**	**2500 cm^3**	**2.4**	**60**		
130.	Ammonium carbonate	500 g	8	40		
131.	Ammonium chloride	500 g	8	40		
132.	Ammonium iron (II) sulfate	500 g	12	60		
133.	Ammonium iron (III) sulfate	500 g	8	40		
134.	Ammonium nitrate	500 g	12	60		
135.	Ammonium sulfate	500 g	8	40		
136.	Barium chloride	500 g	16	80		
137.	Barium nitrate	500 g	16	80		
138.	Bromine liquid	250 cm^3	16	40		
139.	**Calcium carbonate (precipitated)**	**500 g**	**16**	**80**		
140.	Calcium chloride	500 g	8	40		
141.	**Calcium hydroxide**	**500g**	**24**	**120**		
142.	Calcium Metal	500 g	16	80		
143.	Calcium nitrate	500 g	8	40		
144.	Calcium oxide	500 g	16	80		
145.	Calcium sulfate (Hydrated)	250g	16	40		
			Sub - Total	**1640**		

Item	Chemicals	Quantity Required	Marks Per Unit/100g/ 100cm^3	Marks Item-wise	Existing	Score *(for PSEA use only)*
146.	Charcoal Powder	400 g	10	40		
147.	Copper (II) carbonate	500 g	16	80		
148.	Copper (II) chloride hydrated	500 g	8	40		
149.	Copper (II) nitrate	500 g	8	40		
150.	Copper (II) oxide	500 g	16	80		
151.	**Copper (II) sulfate crystals**	**500 g**	**24**	**120**		
152.	**Copper (II) sulfate anhydrous**	**500 g**	**24**	**120**		
153.	Copper turnings	500 g	8	40		
154.	Ethanedioic acid (oxalic)	500 cm^3	8	40		
155.	Ethanoic acid	500 cm^3	16	80		
156.	Ethanol – 90%	1000 cm^3	12	120		
157.	**Hydrochloric acid (concentrated)**	**5000 cm^3**	**2.4**	**120**		
158.	Hydrogen peroxide (100 volumes)	2500 cm^3	3.2	80		
159.	Iodine solid	100 g	120	120		
160.	Iron (II) chloride	500 g	8	40		
161.	Iron (II) Oxide	500 g	16	80		
162.	Iron (II) sulfate	500 g	8	40		
163.	Iron (III) chloride crystals	500 g	8	40		
164.	Iron (III) Oxide	500 g	8	40		
165.	Iron(III) sulphate	500 g	16	80		
166.	Iron filings	500 g	24	120		
167.	Magnesium ribbon	25 g	480	120		
168.	Magnesium oxide	500g	16	80		
169.	Magnesium carbonate	500g	16	80		
170.	Magnesium nitrate	500g	8	40		
			Sub - Total	**1880**		

Item	Chemicals	Quantity Required	Marks Per Unit/100g/ 100cm^3	Marks Item-wise	Existing	Score *(for PSEA use only)*
171.	Magnesium sulfate	500g	8	40		
172.	Manganese (IV) oxide	500 g	16	80		
173.	**Nitric acid concentrated**	**5000 cm^3**	**2.4**	**120**		
174.	Paraffin oil	500 cm^3	8	40		
175.	Potassium bromide	500 g	16	80		
176.	Potassium chloride	500 g	16	80		
177.	Potassium dichromate (VI)	100 g	80	80		
178.	Potassium iodide	500 g	24	120		
179.	Potassium hydroxide	500 g	16	80		
180.	**Potassium manganate (VII) (permanganate)**	**500 g**	**24**	**120**		
181.	Potassium nitrate	500 g	16	80		
182.	**Silver nitrate**	**50 g**	**160**	**80**		
183.	**Sodium carbonate (decahydrate)**	**500 g**	**24**	**120**		
184.	Sodium carbonate (anhydrous)	500 g	24	120		
185.	Sodium chloride (Analar)	500 g	24	120		
186.	**Sodium hydrogencarbonate**	**500 g**	**16**	**80**		
187.	**Sodium hydroxide pellets**	**1000 g**	**12**	**120**		
188.	Sodium metal	100 g	40	40		
189.	Sodium nitrate	500 g	16	80		
190.	Sodium nitrite	500 g	8	40		
191.	Sodium sulfate (anhydrous)	500 g	8	40		
192.	Sodium sulfite (anhydrous)	500 g	8	40		
193.	Sodium thiosulfate	500 g	8	40		
194.	Starch soluble	500 g	8	40		
195.	Stearic acid	200 g	20	40		
196.	Steel wool	500 g	8	40		
197.	Sulfur flowers/sticks	500 g	8	40		
198.	**Sulfuric acid concentrated**	**5000 cm^3**	**2.4**	**120**		
199.	Tin	200 g	20	40		
200.	Zinc carbonate	500 g	8	40		
201.	Zinc chloride	500 g	8	40		
202.	Zinc metal granulated	500 g	24	120		
			Sub - Total	**2360**		

Item	Chemicals	Quantity Required	Marks Per Unit/100g/ 100cm^3	Marks Item-wise	Existing	Score *(for PSEA use only)*
203.	Zinc metal powder	500 g	16	80		
204.	Zinc nitrate	500 g	8	40		
205.	Zinc oxide	500 g	16	80		
206.	Zinc sulfate	500 g	8	40		
	INDICATORS					
207.	Cobalt Chloride Paper	1 pk of 10	40 per pk	40		
208.	**Litmus Paper Red**	**10 pks of 10**	**12 per pk**	**120**		
209.	**Litmus Paper Blue**	**10 pks of 10**	**12 per pk**	**120**		
210.	Litmus solution	100 cm^3	80	80		
211.	**Methyl orange**	**25 g**	**480**	**120**		
212.	Phenolphthalein	25 g	480	120		
213.	Screened Methyl Orange	25 cm^3	320	80		
214.	**(Universal) – pH paper**	**1 reel**	**80**	**80**		
215.	Universal indicator	200 cm^3	40	80		
			Sub - Total	**1080**		
			TOTAL Sect. D	**15380**		Score sect D

Actual *Marks Scored* On Equipment & Consumables (Section D) = $\frac{\text{Score sect D}}{15380} \times 12000 =$ _____

MARK SCHEME AND SCORE

SECTION	WEIGHTAGE	TOTAL MARKS	MARKS SCORED	% SCORE Section-wise
A. Physical Facilities	30%	**12000**		
B. Instructional Tools & Records	30%	**12000**		
C. Safety Items	10%	**4000**		
D. Equipment and Consumables	30%	**12000**		
OVERALL	**100%**	**40000**		

REMARKS AND SHORTCOMINGS
(With particular reference to conditions at page 1 and score obtained)

Signature of PSEA Supervisor/Senior Supervisor (s)

Date:----------

Signature of Manager

Date:----------

Norms and Standards developed by the Supervision Section (2019)
BC/NAB – updated June 2021