JEE/NEET PRACTICE SHEET
TOPIC: Molarity (Answers)
SEM- 1 AND 3

1. (c) $M_1V_1 + M_2V_2 = MV$

2. (d) $M = \frac{w}{m \times V(l)}$; $0.25 = \frac{w}{106 \times 0.25}$; $w = 6.625$ *gm*

3. (b) $M = \frac{n}{V(l)} = \frac{0.006}{0.1} = 0.06$

4. (b) $M = \frac{W \times 1000}{mol.mass \times \text{Volume in } ml.} = \frac{9.8 \times 1000}{98 \times 2000} = 0.05\,M$

5. (a) $M = \frac{W}{m.wt.} \times \frac{1000}{\text{Volume in } ml.} = \frac{5 \times 1000}{40 \times 250} = 0.5M$

6 (a) $M_1V_1 = M_2V_2$

$0.01 \times 19.85 = M_2 \times 20$

$M_2 = 0.009925$; $M = 0.0099$.

7 (a) $M = \frac{w}{m.wt. \times \text{volume in litre}} = \frac{5.85}{58.5 \times 0.5} = 0.2M$

8 (b) $(2.5 \times 1 + 3 \times 0.5) = M_3 \times 5.5$

or $2.5 + 1.5 = M_3 \times 5.5$ or $M_3 = \frac{4}{5.5} = 0.73$ *M.*

9 (c) Molarity $= \frac{w}{m.wt. \times \text{volume in litre}} = \frac{171}{342 \times 1} = 0.5M$.

10 (a) For *HCl* $M = N = 0.1$

$N_1V_1 = N_2V_2$; $25 \times N_1 = 0.1 \times 35$

$N_1 = \frac{0.1 \times 35}{25}$; $\therefore M = \frac{0.1 \times 35}{25 \times 2} = 0.07$.

11 (c) We know that

Molarity $= \frac{\text{Number of moles of solute}}{\text{Volume of solution in } litre}$

$\therefore 2.0 = \frac{0.5}{\text{Volume of solution in } litre}$

$\therefore$ Volume of solution in *litre*

$= \frac{0.5}{2.0} = 0.250 litre = 250\,ml.$

12. (a) $M = \frac{w}{m \times V(l)}$; $0.52 = \frac{w}{36.5 \times 0.15}$; $w = 2.84\ gm$

13. (c) $M = \frac{n}{V(l)}$; $0.5 = \frac{n}{2}$; $n = 1$

14. (c) $M_1V_1 + M_2V_2 = M_3V_3$;

$1.5 \times 480 + 1.2 \times 520 = M \times 1000$

$M = \frac{720 + 624}{1000} = 1.344\,M$.

15. (a) 100 *ml.* of $0.30M = \frac{100 \times 0.3}{1000} = 0.03$ mole of *NaCl*

100 *ml* of $0.40M = \frac{100 \times 0.4}{1000} = 0.04$ mole of *NaCl*

Moles of *NaCl* to be added $= 0.04 - 0.03 = 0.01$ mole

$= 0.585$ *gm*

16. (b) $M = \frac{n}{V(l)} \Rightarrow 0.8 = \frac{0.1}{V(l)} \Rightarrow V = 125\,ml$.

17. (d) Molar concentration $[H_2] = \frac{Mole}{V \text{ in } litre} = \frac{20/2}{5} = 2$.

18. (a) $M = \frac{w \times 1000}{m.wt. \times \text{Volume in } ml.} = \frac{10.6 \times 1000}{106 \times 500} = 0.2\,M$.

19. (b) $M_1V_1 = M_2V_2$, $M_2 = \frac{0.25 \times 25}{500} = 0.0125$.

20. (a) $M = \frac{w \times 1000}{m \times \text{Volume in } ml.} = \frac{1 \times 1000}{40 \times 250} = 0.1\,M.$

21. (c) Molarity $= \frac{w \times 1000}{ml \text{ wt.} \times \text{Volume } ml.} = \frac{7.1 \times 1000}{142 \times 100} = 0.5\,M$.

22 (d) $M = \frac{4 \times 10}{40} = 1\,M$.

23. (b) Weight = molarity × *m.wt.*× *v* = $1 \times 132 \times 2 = 264\,gm.$

24. (c) 98% H_2SO_4 means 98*g* H_2SO_4 in 100*g* solution.

$\frac{100}{1.84} cc = 54.3cc$; $98g\ H_2SO_4 = 1mol$

Hence molarity $= \frac{1}{54.3} \times 1000 = 18.4M$

25. (c) $C = \frac{6}{60} = 0.1$ *molar.*

26. (c) Molar concentration = $\frac{5.85 \times 1000}{58.5 \times 200} = 0.5\,Molar$.

27. (c) $M = \frac{w \times 1000}{m.wt. \times V \text{ in } ml} = \frac{75.5 \times 1000}{56 \times 540} = 2.50\,M$

28. (a) Molarity of pure water $= \frac{1000}{18} = 55.6\,M$.

29. (c) $M = \frac{w}{m \times V(l)} \Rightarrow 0.1 = \frac{w \times 4}{40 \times 1} \Rightarrow w = 1gm$

30. (c) $M = \frac{w \times 1litre}{m.wt. \times \text{Volume } litre} = \frac{4 \times 1}{40 \times 0.1} = 1M$.

31. (c) $M = \frac{n}{V(l)} \Rightarrow 3 = \frac{n}{1} \Rightarrow n = 3$ moles.

32. (b) $W = \frac{M \times m.wt. \times V}{1000} = \frac{0.1 \times 98 \times 400}{1000} = 3.92\ g$.

33. (b) Mole of urea $= \frac{6.02 \times 10^{20}}{6.02 \times 10^{23}} = 10^{-3}$ moles

Conc. of solution (in molarity) $= \frac{10^{-3}}{100} \times 1000 = 0.01\,M$.