





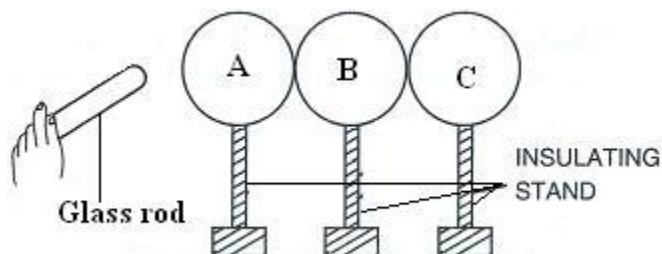






**Question 10**

- (a) Three identical metal spheres A, B and C are supported on insulated stands and placed in contact as shown in the figure. A glass rod G is rubbed with silk and it is kept near the sphere A. [4]



- i. With the help of a proof plane, the charge on A, B and C is tested. What charge will there be on A, B and C?
- ii. The sphere C is earthed momentarily and then the glass rod is removed. What charge will there be on each sphere?
- iii. In the presence of glass rod, sphere C is moved away; so, its contact from B is broken and then, B is also moved away. What charge will there be on each sphere?
- iv. If the glass rod is made to touch the sphere A in the above cases, how will each of the above observations change?

- (b) [3]

- i. Draw a labeled diagram of a simple voltaic cell.
- ii. Name two major defects in the above cell.
- iii. What is the e.m.f. of the above cell?

- (c) Metal bars are brought near each pole of a compass needle in turn. Complete the following table: [3]

Nature of bar	Action on compass needle	
	North pole	South pole
Non-magnetic	No action	No action
.....	Attracted	Attracted
North pole of a bar magnet	.....	.....
.....	Attracted	Repelled