PART – A

Directions (Q. Nos. **1-2**) These questions are based on the information given below:
Seven persons a, b, c, d, e, f and g are sitting in a row (not necessarily in the same order) facing North, such that :

i. only two persons sit between f and g and g sits second to the left of b;
ii. d sits third to the left of c ; and
iii. e sits exactly between g and b, and b sits at the extreme right end of the row.

1. How many persons sit between f and e ?
   A) One B) Two C) Three D) Four

2. Who amongst the following sits exactly in the middle of the line ?
   A) a B) c C) e D) g

3. Find the missing character (?) in the following question.

1	2	3
11	7	5
120	45	?

   A) 15 B) 16 C) 17 D) 18

4. Two statements are given in the following question, followed by two conclusions numbered I and II. You have to take the given two statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the two given statements, disregarding known facts. Give answer.
   A) if only conclusion I follows
   B) if only conclusion II follows
   C) if neither I nor II follows
   D) if both conclusions I and II follow

   Statements
   I. Some teachers are followers.
   II. Some followers are famous.

   Conclusions
   I. Some teachers are famous.
   II. Some followers are teachers.

PART – B

26. In a compound microscope, the sine value of half aperture angle multiplied by refractive index (n) of the medium (the space between front lens and cover slip) gives the
    A) Resolving power
    B) Numerical aperture
    C) Resolution
    D) Magnification

27. The resolution limit of Transmission Electron Microscopy (TEM) is
    A) 0.7 nm B) 0.6 nm C) 0.5 nm D) 0.05 nm

28. In Electrophoresis if the buffer is at a above pH with that of isoelectric point, the sample will be negatively charged and will
    A) Migrate towards the anode
    B) Migrate towards the cathode
    C) Not migrate at all
    D) Migrate partly to anode and partly to cathode

29. The unit of radioactivity is Curie or Bequerel and One Curie (Ci) is equivalent to
    A) 5.7×10^{10} disintegrations per second
    B) 4.7×10^{9} disintegrations per second
    C) 3.7×10^{10} disintegrations per second
    D) 2.7×10^{9} disintegrations per second

30. What will be the angular velocity of a centrifuge operating at 6000 revolution per minute ?
    A) 62.8 radians per second
    B) 628 radians per second
    C) 6.28 radians per second
    D) 6280 radians per second

31. Introduction of carbon fiber as a rotor material instead of high stress tolerant titanium alloy and aluminum alloy considering rotor safety is due to its
    A) Lighter weight
    B) Better strength
    C) Better strength to weight ratio
    D) All of the above

32. The capacity factor (k') for an analyte in a column will be equal to distribution or partition coefficient (k_d) only when
    A) Volume of stationary phase is equal to mobile phase
    B) Volume of stationary phase is one-half to mobile phase
    C) Volume of stationary phase is one-tenth to mobile phase
    D) Volume of stationary phase is one-third to mobile phase