HYDROLOGY

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Q1.   **Statement(1)** : Condensation of water vapour into droplets precedes the precipitation process.

Statement(2): Formation of precipitation droplets is predicted on the presence of condensation nuclei.

(a) Both statement(1) and statement(2) are individually true and statement (2) is the correct explanation of statement(1).
(b) Both statement(1) and statement(2) are individually true but statement (2) not is the correct explanation of statement(1).
(c) Statement (1) is true but statement (2) is false.
(d) Statement (1) is false but statement (2) is true.

Q2.   The double mass curve technique is used:
(a) To find the average rainfall over a number of years.
(b) To estimate the missing rainfall data.
(c) To check the consistency of rain gauge records.
(d) To find the minimum number of rain gauges required in a basin.

Q3.   What would be the volume of water stored in a saturated column with a porosity of 0.35 with a cross-sectional area of $1m^2$ and depth of 3m?

(a) $2.0m^3$ (b) $0.105m^3$
(c) $1.05m^3$ (d) $3.0m^3$

Q4.   Which of the following are pertinent to the realization of hydrological cycle ?

1) Latitudinal differences in solar heating of the Earth's surface.
2) Inclination of the Earth's axis
3) Uneven distribution of land and water.
4) Coriolis effect.
(c) 1,2 & 3 only   (b) 1,2 & 4 only
(c) 2,3 & 4 only   (d) 1,2,3 & 4

Q5.   Consider the following with respect to 'double – mass curve':

1) Plot of accumulated rainfall with respect to two chronological orders.
2) Plot for estimating multiple missing rainfall data.
3) Plot for checking the consistency of the rainfall data.
4) Plot of accumulated annual rainfall of a station vs. accumulated rainfall of a group of stations.

Which of these statements are correct ?

(a) 1 & 3   (b) 2 & 3

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(c) 3 & 4   (d) 1 & 4

Q6.   What is 'hydrological cycle'?

(a) Processes involved in the transfer of moisture from sea to land.
(b) Processes involved in the transfer of moisture from sea back to sea again.
(c) Processes involved in the transfer of water from snowmelt in mountains to sea.
(d) Processes involved in the transfer of moisture from sea to land and back to sea again.

Q7.   The area between the two isohyetes 45cm and 55cm is $100km^2$, and that between 55cm and 65 is $150km^2$.What is the average depth of annual precipitation over the basin 0f $250km^2$?

(a) 50cm   (b) 52cm
(c) 56cm   (d) 60cm

Q8.   The following rainfall data refers to station A and B which are equidistant from station X :

	Station A	Station X	Station B
Long-term normal annual rainfall in mm	200	250	300
Annual rainfall in mm for the year 1940.	140	P	270

The value of P will be

(a) 250   (b) 220
(c) 205   (d) 200

Q9.   Depth-Area-Duration curves would seem to resemble

(a) Arcs of circle concave upwards with duration increasing outward.
(b) First quadrant limbs of hyperbolae with duration increasing outward.
(c) Third quardrant limbs of hyperbolae with duration decreasing outward.
(d) First quadrant limbs of hyperbolae with duration decreasing outward.

Q10.   If 'P' is the precipitation, 'a' is the area represented by a rain gauge,and 'n' is the number of rain gauges in a catchment area, then the weighted mean rainfall is.

(a) $\sum ap^3 / \sum a^2$ (b) $\sum ap / n$
(c) $\sum ap / \sum a$ (d) $\sum ap^5 / \sum a^3$