Class 12 Practical Viva Question Bank

Physics · Chemistry · Biology · Computer Science. Cover the answer column and practise out loud. Viva questions also come from your own file and project.

Physics

#	Question	Short answer
1	Why is a metre bridge wire made of manganin or constantan?	High resistivity and a low temperature coefficient of resistance.
2	What is the principle of a metre bridge?	Wheatstone bridge: at balance (no current in the galvanometer), P/Q = R/S.
3	Why should the balance point be near the middle of the metre bridge wire?	It reduces the effect of end errors and makes the bridge most sensitive.
4	What does the slope of a V–I graph give?	The resistance, when V is plotted on the y-axis (Ohm's law).
5	How can you find the focal length of a convex lens from a 1/v vs 1/u graph?	Plotting magnitudes, the straight line cuts both axes at 1/f.
6	What happens at the angle of minimum deviation in a prism?	The ray passes symmetrically through the prism; angle of incidence = angle of emergence.
7	How is a galvanometer converted into an ammeter and a voltmeter?	Ammeter: low resistance (shunt) in parallel. Voltmeter: high resistance in series.
8	How does a p-n junction diode behave in forward bias?	Very little current until the threshold (knee) voltage, then current rises sharply (about 0.7 V for silicon).

Chemistry

#	Question	Short answer
1	Why is no indicator used in $KMnO_4$ titrations?	$KMnO_4$ acts as a self-indicator: the first permanent light pink colour marks the end point.
2	Why is dilute H_2SO_4 used, not HCl, in $KMnO_4$ titrations?	H_2SO_4 provides the acidic medium; HCl would be oxidised by $KMnO_4$ to chlorine.
3	Why is the oxalic acid solution warmed (60–70 °C) before titrating with $KMnO_4$?	The reaction is slow at room temperature; warming speeds it up.
4	Why is the Mohr's salt titration done without heating?	Fe^{2+} ions would be oxidised by air at higher temperature.
5	What is a primary standard?	A pure, stable substance whose solution can be prepared by direct weighing, e.g. oxalic acid, Mohr's salt.
6	Why is the burette rinsed with the solution it will hold?	So water left inside doesn't dilute the solution.
7	Why is dilute HCl added before passing H_2S in group II?	To suppress the ionisation of H_2S (common ion effect), so only group II sulphides precipitate.
8	Why is NH_4Cl added with NH_4OH in group III?	To suppress the ionisation of NH_4OH, so only group III hydroxides precipitate.

Biology

#	Question	Short answer
1	Why is the onion root tip used to study mitosis?	Its meristematic cells divide actively, so all stages can be seen.
2	Which stain is used for the onion root tip squash?	Acetocarmine; dilute HCl is used first to soften (hydrolyse) the tissue.
3	How do you identify metaphase?	Chromosomes are lined up at the equatorial plate.

#	Question	Short answer
4	What is used to germinate pollen grains on a slide?	A nutrient solution of sucrose (with boric acid).
5	Population density by the quadrat method?	Total number of individuals of the species in all quadrats ÷ total number of quadrats studied.
6	Frequency (%) by the quadrat method?	(Number of quadrats in which the species occurs ÷ total quadrats studied) × 100.
7	Why is detergent used in DNA isolation?	It breaks down the cell and nuclear membranes to release DNA.
8	Why is chilled ethanol added in DNA isolation?	DNA is insoluble in ethanol and precipitates out as white threads.

Computer Science

#	Question	Short answer
1	Difference between a list and a tuple?	A list is mutable; a tuple is immutable.
2	Difference between fetchone() and fetchall()?	fetchone() returns the next row; fetchall() returns all remaining rows as a list of tuples.
3	What does commit() do in Python–MySQL connectivity?	It saves the changes made in the transaction to the database permanently.
4	What is a primary key?	A column (or set of columns) that uniquely identifies each record; it cannot be NULL.
5	Difference between WHERE and HAVING?	WHERE filters rows before grouping; HAVING filters groups after GROUP BY.
6	Difference between a text file and a binary file?	Text files store human-readable characters with end-of-line markers; binary files store raw bytes (e.g. with pickle).
7	What is a stack?	A LIFO (last in, first out) structure with push and pop operations.
8	Why use the with statement to open a file?	It closes the file automatically, even if an error occurs.

Viva tips

- Answer in one or two sentences; add the principle if asked “why”.
- If you don’t know, say so and reason aloud — don’t invent an answer.
- Know every number in your file: where each reading came from and what the result means.
- For your project: be ready to explain the aim, method and one thing you would improve.