

**Ph.D. Entrance Test (2026-2027)**  
**Subject: Pharmaceutical Sciences**  
**Answer Key**

| <b>Q.No.</b> | <b>Option</b> | <b>Answer</b>                                                          | <b>Q.No.</b> | <b>Option</b> | <b>Answer</b>                          |
|--------------|---------------|------------------------------------------------------------------------|--------------|---------------|----------------------------------------|
| 1.           | <b>C</b>      | Null hypothesis                                                        | 51.          | <b>A</b>      | Passive targeting                      |
| 2.           | <b>B</b>      | Studying rare diseases                                                 | 52.          | <b>B</b>      | PLGA                                   |
| 3.           | <b>C</b>      | Serve as a control by mimicking the test treatment without active drug | 53.          | <b>D</b>      | Zeta potential                         |
| 4.           | <b>A</b>      | Measurement and observer bias                                          | 54.          | <b>B</b>      | Diffusion-controlled drug release      |
| 5.           | <b>B</b>      | Participants are allocated according to investigator preference        | 55.          | <b>C</b>      | High solubility, high permeability     |
| 6.           | <b>D</b>      | Independent variable                                                   | 56.          | <b>B</b>      | Non-ionic surfactants                  |
| 7.           | <b>C</b>      | 16                                                                     | 57.          | <b>A</b>      | Morphine                               |
| 8.           | <b>A</b>      | 17                                                                     | 58.          | <b>A</b>      | Topoisomerase II (DNA gyrase)          |
| 9.           | <b>C</b>      | Good precision and consistency                                         | 59.          | <b>C</b>      | Methyl (-CH <sub>3</sub> )             |
| 10.          | <b>C</b>      | One-way ANOVA                                                          | 60.          | <b>D</b>      | Celecoxib                              |
| 11.          | <b>B</b>      | Positive correlation                                                   | 61.          | <b>B</b>      | Electronic effects of substituents     |
| 12.          | <b>C</b>      | Sample                                                                 | 62.          | <b>A</b>      | IR spectroscopy                        |
| 13.          | <b>A</b>      | Median                                                                 | 63.          | <b>B</b>      | HMG-CoA reductase                      |
| 14.          | <b>B</b>      | Maximum – Minimum                                                      | 64.          | <b>C</b>      | Etoposide                              |
| 15.          | <b>C</b>      | Variance                                                               | 65.          | <b>A</b>      | Oral bioavailability                   |
| 16.          | <b>A</b>      | Statistically significant difference                                   | 66.          | <b>B</b>      | Cytochrome P450                        |
| 17.          | <b>B</b>      | Biological and health sciences                                         | 67.          | <b>C</b>      | Anisaldehyde-sulfuric acid reagent     |
| 18.          | <b>B</b>      | Two means when sample size is relatively small                         | 68.          | <b>D</b>      | Nicotinic acetylcholine receptor       |
| 19.          | <b>D</b>      | Take precedence over the interests of science and society              | 69.          | <b>B</b>      | Dopamine                               |
| 20.          | <b>B</b>      | Be humane and minimize pain and distress                               | 70.          | <b>D</b>      | Inhibits peripheral dopa decarboxylase |
| 21.          | <b>A</b>      | Purpose, procedures, risks, benefits, and voluntary participation      | 71.          | <b>B</b>      | Vitamin K epoxide reductase            |
| 22.          | <b>C</b>      | Non-maleficence                                                        | 72.          | <b>C</b>      | Decreasing hepatic glucose production  |
| 23.          | <b>A</b>      | Maximize potential benefits and minimize harm                          | 73.          | <b>C</b>      | μ (Mu)                                 |
| 24.          | <b>B</b>      | A group of homogeneous experimental units                              | 74.          | <b>A</b>      | Celecoxib                              |

| Q.No. | Option   | Answer                                                                               | Q.No. | Option   | Answer                                                      |
|-------|----------|--------------------------------------------------------------------------------------|-------|----------|-------------------------------------------------------------|
| 25.   | <b>C</b> | 8                                                                                    | 75.   | <b>B</b> | Dose producing 50% of the maximal effect                    |
| 26.   | <b>B</b> | $Y = a + bX$                                                                         | 76.   | <b>B</b> | Detection and prevention of adverse drug reactions          |
| 27.   | <b>C</b> | 0 and 1                                                                              | 77.   | <b>C</b> | Alkaloids                                                   |
| 28.   | <b>B</b> | F-test                                                                               | 78.   | <b>A</b> | <i>Agrobacterium rhizogenes</i>                             |
| 29.   | <b>C</b> | Design-Expert®                                                                       | 79.   | <b>B</b> | Cytokinins                                                  |
| 30.   | <b>A</b> | MINITAB®                                                                             | 80.   | <b>A</b> | Terpenoids                                                  |
| 31.   | <b>C</b> | R                                                                                    | 81.   | <b>A</b> | Cytarabine                                                  |
| 32.   | <b>A</b> | Phase III                                                                            | 82.   | <b>B</b> | Peak area                                                   |
| 33.   | <b>B</b> | Optimize formulation and process variables                                           | 83.   | <b>B</b> | Thick peptidoglycan layer                                   |
| 34.   | <b>D</b> | Generate reliable and reproducible knowledge                                         | 84.   | <b>C</b> | Endotoxins                                                  |
| 35.   | <b>B</b> | Identify critical formulation and process variables                                  | 85.   | <b>B</b> | Concentration and path length                               |
| 36.   | <b>B</b> | Plagiarism                                                                           | 86.   | <b>B</b> | UV-Visible detector                                         |
| 37.   | <b>A</b> | Histogram                                                                            | 87.   | <b>C</b> | Water content                                               |
| 38.   | <b>D</b> | A two-dimensional representation of a response surface using lines of equal response | 88.   | <b>A</b> | Column overload                                             |
| 39.   | <b>B</b> | Study objectives, methodology, statistical analysis plan, and ethical considerations | 89.   | <b>B</b> | Lubricant                                                   |
| 40.   | <b>C</b> | Identification of the research problem                                               | 90.   | <b>D</b> | Air entrapment and inadequate granulation                   |
| 41.   | <b>A</b> | Identify research gaps                                                               | 91.   | <b>B</b> | Cream                                                       |
| 42.   | <b>C</b> | PubMed                                                                               | 92.   | <b>C</b> | Slip and drag method                                        |
| 43.   | <b>A</b> | Uses predefined methodology                                                          | 93.   | <b>C</b> | Scattered light by suspended particles                      |
| 44.   | <b>B</b> | Systematic error affecting study validity                                            | 94.   | <b>B</b> | FTIR Spectrometer                                           |
| 45.   | <b>A</b> | Provide a basis for comparison                                                       | 95.   | <b>C</b> | 90°                                                         |
| 46.   | <b>C</b> | Both participant and investigator are blinded                                        | 96.   | <b>B</b> | Polar                                                       |
| 47.   | <b>B</b> | CCSEA                                                                                | 97.   | <b>B</b> | Interferogram into an infrared spectrum                     |
| 48.   | <b>D</b> | Using alternatives to live animals whenever possible                                 | 98.   | <b>A</b> | Much smaller than the wavelength of light                   |
| 49.   | <b>A</b> | Improve animal welfare by minimizing pain and distress                               | 99.   | <b>B</b> | Secondary interactions between analyte and stationary phase |
| 50.   | <b>B</b> | 1964                                                                                 | 100.  | <b>B</b> | Triplet excited state                                       |