

1. "Karma Lakshanam Veeryam" is opined by-
(A) Acharya Charak (B) Acharya Sushrut
(C) Acharya Nagarjun (D) Acharya Vagbhatta
2. _____ *Bhutotkarsha* take place in the *Vishada Veerya*.
(A) Jala + Akash (B) Pruthvi + Akash
(C) Pruthvi + Jala (D) Vayu
3. Which of the following is considered as best of Anuloman dravya?
(A) Haritaki (B) Trivruta
(C) Amalaki (D) Aragvadh
4. Complete the verse with following word " _____ Shleshmapittajananam"
(A) Dadhi (B) Kulattha
(C) Mash (D) Yavak
5. Which of the following is the best Kandughna dravya?
(A) Nimba (B) Karanja
(C) Haridra (D) Chandan
6. From the following, which is NOT considered as source plant of Goksura?
(A) *Tribulus terrestris* L. (B) *Xanthium strumarium* L.
(C) *Pedaliium murex* L. (D) *Viscum album* L.
7. The name "Halini" is based on which of the following?
(A) Kanda (B) Phala
(C) Moola (D) Upama
8. How many vargas are there in Dhanavantari Nighantu?
(A) 7 (B) 9
(C) 8 (D) 12
9. Apratighatatva is the characteristic of-
(A) Prithvi Mahabuta (B) Akash Mahabuta
(C) Agni Mahabuta (D) Vayu Mahabuta
10. Which of the following pair of the Gunas are NOT considered in Upakramas?
(A) Laghu - Guru (B) Ushna - Sheeta
(C) Tikshana - Manda (D) Ruksh - Snigdha

11. "Chaturbeeja" is a combination of-
- (A) Methika, Chandrashur, Yavani, Sarsap (B) Chandrashur, Yavani, Methika, Kalajaji
- (C) Yavani, Methika, Krushn jirak, Ajamoda (D) Chandrashur, Methika, Vidang, Yavani
12. Sunthi and Pippali are Vata shamak and Vrishya due to its-
- (A) Sheeta Veerya & Madhur Rasa (B) Ushna Veerya & Madhur Rasa
- (C) Ushna Veerya & Katu Rasa (D) Ushna Veerya & Madhura Vipaka
13. Which of the following is NOT Vrushya dravya?
- (A) Madhu (B) Pippali
- (C) Sunthi (D) Rason
14. Vipaka can be inferred by which of the following Pramana?
- (A) Pratyaksha (B) Anuman
- (C) Aptopadesh (D) Yukti
15. Which of the following is classified as Abhishyandi?
- (A) Pippali (B) Shunthi
- (C) Dadhi (D) Lashun
16. Which of the following media is used for Hingu shodhana?
- (A) Kanji (B) Triphala kwatha
- (C) Gomutra (D) Jala
17. Which of the following Gunas are Sparshnendriya grahya?
- (A) Guru - Laghu (B) Snighdha - Ruksha
- (C) Shira - Sara (D) Sheeta -, Ushana
18. Complete the verse with following word "_____ Pathyanam"
- (A) Amalaki (B) Haritaki
- (C) Guduchi (D) Sunthi
19. Which of the following is NOT considered as source plant of Murva?
- (A) *Inula racemosa* H. (B) *Helicteres isora* L.
- (C) *Sesuvium portulacastrum* L. (D) *Maerua arenaria* F.
20. Which type of guna is inferred to the "Trikatu"?
- (A) Paradi Guna (B) Satvika Guna
- (C) Gurvadi Guna (D) Bhautika Guna

21. As per to Bhavaprakasha, which of the following Dravya is Ushna Virya and Hima Sparsha?
- (A) Haritaki (B) Guduchi
(C) Bibhitaki (D) Amalaki
22. Which of the following group of drugs are known as Madhyama Panchamoola?
- (A) Bala, Punarnava, Bruhati, Mudgaparni, Mashaparni (B) Bala, Punarnava, Saireyaka, Prushniparni, Shalaparni
(C) Bala, Punarnava, Erand, Mudgaparni, Mashaparni (D) Bala, Punarnava, Eranda, Shalaparni, Prushniparni
23. Dhanyaka is mentioned in which of the following Kashaya Skandha of Charaka?
- (A) Daha Prashamana (B) Shoola Prashamana
(C) Udarda Prashamana (D) Shita Prashamana
24. "Mochrasa" exudate from-
- (A) *Bombax malabarica* DC (B) *Acacia arabica* W
(C) *Anogeissus latifolia* R (D) *Sterculia urens* R.
25. Which of the family possesses gland dotted leaves?
- (A) Rutaceae (B) Meliaceae
(C) Anacardiaceae (D) Cucurbitaceae
26. Growing pattern of Mandukparni is considered as-
- (A) Corm (B) Runner
(C) Stolon (D) Decumbent
27. Which type of roots are appeared in *Asparagus racemosus* Willd?
- (A) Assimilatory (B) Stilt
(C) Fasciculated (D) Conical
28. Which type of inflorescence is seen in Apamarga?
- (A) Capitulum (B) Spadix
(C) Umble (D) Spike
29. After drying, the shape pattern of Kutaj bark is-
- (A) Recurved (B) Compound quilled
(C) Channelled (D) Quilled
30. Which of the following which is NOT fracture pattern of the bark?
- (A) Fibrous (B) Curved
(C) Granular (D) Laminated

31. Complete the verse with following word “_____ Vata haranam”
- (A) Pushkarmula (B) Eranda
(C) Amalaki (D) Rasna
32. Which of the following is NOT quoted as source plant of Nagkesara?
- (A) *Messua ferrea* L. (B) *Ochrocarpus longifolius* B.
(C) *Oldenlandea corymbosa* L. (D) *Dillenia pentagyna* L.
33. How many varieties of Dadima are mentioned in Bhavaprakasha Nighantu?
- (A) 2 (B) 4
(C) 5 (D) 3
34. are the varieties of Karavira mentioned by Bhavaprakasha Nighantu.
- (A) Shweta Pushpa, Rakta Pushpa, (B) Shweta Pushpa& Rakta Pushpa
PitaPushpa
(C) Shweta Pushpa& Pita Pushpa (D) Rakta Pushpa & Pita Pushpa
35. Dhanyaka is mentioned in which following Maha Kashaya of Charaka ?
- (A) Daha Prashamana (B) Udarda Prashamana
(C) Shita Prashamana (D) Shoola Prashamana
36. Combination of Shunti, Ativisha, Musta and Guduchi are called as-
- (A) Chaturjaataka (B) Chaturbija
(C) Chaturrooshana (D) Chaaturbhadra
37. Which of the Rasa is Samanayoni of Pitta?
- (A) Lavana (B) Amla
(C) Kashaya (D) Katu
38. Krutamala is classified in-
- (A) Amla Skandha (B) Kashaya Skandha
(C) Tikta Skandha (D) Madhura Skandha
39. Which of the Rasa is having both Vyavayi and Vikasi guna?
- (A) Amla (B) Lavana
(C) Katu (D) Tikta
40. According to Charaka, Shushka Mulaka is-
- (A) Kaphavatajita (B) Tridoshakrita
(C) Doshaharam (D) Tridoshakrita

41. According to Acharya Sushruta "Devdali" is?
(A) Urdhvabhagahara (B) Adhobhagahara
(C) Ubhayatobhagahara (D) Shirovirechana
42. Vishapushpaka is the synonym of-
(A) Karaveera (B) Madanaphala
(C) Arka (D) Dhattura
43. Which of the following is known as synonym as well as the type of Guggulu?
(A) Hiranya (B) Kaushika
(C) Kaushika (D) Mahishaksha
44. Which of the following drug describe under Swasahara Mahakashaya?
(A) Jivanti (B) Bharangi
(C) Vasa (D) Kantkari
45. Which of the following drug mentioned in Kasahara Mahakashaya?
(A) Bibhitak (B) Pippalimoola
(C) Punarnava (D) Vasa
46. मधुसर्पिणी समघृते is the example of-
(A) Satmya Viruddha (B) Veerya Viruddha
(C) Koshtha Viruddha (D) Matra Viruddha
47. According to Bhavamishra, which of the following is the substitute for Yastimadhu?
(A) Gambhari phala (B) Dhataki pushpa
(C) Vidari (D) Shatavari
48. Upakunchika belongs to which of the following family?
(A) Papilionaceae (B) Combretaceae
(C) Umbeliferae (D) Ranunculaceae
49. According to Bhavamishra, which of the following dravya is Sheeta Veerya?
(A) Lavanga (B) Pippali
(C) Ashwagandha (D) Bruhat ela
50. According to Maharshi Vagbhatta, which group of Rasa is ordered from Laghu to Laghuttama?
(A) Katu Amla Lavana (B) Amla Lavana Tikta
(C) Amla Katu Tikta (D) Amla Tikta Katu

End

1. IR-Spectroscopy detects which of the following parameter?
(A) Nuclear spin (B) Molecular vibrations
(C) Electron transitions (D) Mass
2. Computational spectroscopy involves-
(A) Simulation of spectra (B) Lab experiments only
(C) Chromatography (D) Sampling
3. Fuzzy ISM is used when-
(A) Data is precise (B) Uncertainty exists
(C) No data (D) Linear systems
4. Spectroscopy in drug discovery helps in identifying the-
(A) Synthesis only (B) Structural elucidation
(C) Sampling (D) Ethics
5. In Flame Atomic Absorption Spectroscopy, what is function of the hollow cathode lamp?
(A) Atomize the sample (B) Detect the amount of light transmitted
(C) Provide narrow band radiation source specify to the analyte (D) Ionise the sample for mass separation
6. NMR spectroscopy is based on which of the following?
(A) Electron transitions (B) Pressure
(C) Nuclear spin properties (D) Heat transfer
7. In HPTLC, why is 'Band-wise' sample application preferred over 'Circular' spotting?
(A) It reduces the need for nitrogen gas during atomization (B) It allows the sample to be applied in volumes exceeding 10 mL
(C) It prevents the 'solvent front' effect common in TLC (D) It provides the best resolution and enhances densitometer availability
8. What is the primary purpose of the 'Prewashing' step for stationary phase in HPTLC?
(A) To eliminate water vapours and volatile contaminants (B) To ensure the stationary phase is in equilibrium with the gas phase
(C) To activate the silanol groups via heat (D) To reduce the R_f values of highly polar analytes
9. A Generalized Linear Mixed Models is preferred over Generalized Linear Models when-
(A) Data is linear (B) Random effects are present
(C) Sample size is large (D) Only fixed effects exist
10. In Mass Spectrometry, what does the m/z ratio represent?
(A) Mass-to-charge ratio (B) Molecule-to zero gravity
(C) Molarity-to-zone index (D) Minimum-to-zero threshold

11. What is the role of the 'Electrospray Ionization' (ESI) interface in LC-MS?
- (A) Filter analyte on mass to charge (B) Convert liquid phase analyte to gas phase
(C) Separate analyte on polarity (D) To fragment molecules in to smaller one
12. Which specific mobile phase composition was identified as a sustainable 'Green Chemistry' alternative for the separation of Glycyrrhizic acid (GA) from liquorice extracts?
- (A) Hexane: Butanol: Chloroform (2.5: 2: 0.5 v/v/v) (B) n-Butanol: Acetic acid: Toluene (4.2: 0.2: 0.4 v/v/v)
(C) Chloroform: Methanol: Water (3: 1.6: 0.4 v/v/v) (D) n-Butanol: Hexane: Toluene: Formic acid (3.5: 0.7: 0.6: 0.2 v/v/v)
13. In the comparison of standard TLC and HPTLC, which specific parameter defines the sorbent layer of HPTLC as having higher efficiency?
- (A) A monochromatic wavelength range of 254 nm (B) Manual sample application using capillary tubes
(C) A mean particle size of 5-6 μm (D) A sorbent layer thickness of 250 μm
14. Which technique is most effective for identifying the functional groups in a newly isolated phytochemical?
- (A) UV-Vis Spectroscopy (B) Mass Spectrometry(MS)
(C) X-ray Crystallography (D) Fourier Transform Infrared Spectroscopy
15. Which technique is specifically designed to separate enantiomers in drug discovery?
- (A) Reverse-Phase HPLC (B) Chiral Chromatography
(C) Size-Exclusion Chromatography (D) Ion-Exchange Chromatography
16. In reversed-phase liquid chromatography (RP-LC), which molecular property typically shows the strongest correlation with retention time?
- (A) Molecular weight (B) Net electrical charge at neutral pH
(C) Vapour pressure (D) Hydrophobicity (often measured as $\log P$)
17. Which molecular descriptor is used to evaluate the number of hydrogen bond donors (HBD) in a lead compound?
- (A) 1D/2D Constitutional descriptor (B) 3D Geometric descriptor
(C) Quantum chemical descriptor (D) Thermodynamic descriptor
18. What does the Molar Refractivity descriptor combine the information about?
- (A) Molar volume & Refractive index (B) Nos. of OH groups & their resonance
(C) Activity & the partition coefficient. (D) Molecular weight and aqueous solubility

19. Which microextraction technique is specifically described as being 'Capillary Microextraction' where the process occurs inside a fused silica column?
- (A) Pipette-tip SPE (B) Stir Bar Sorptive Extraction (SBSE)
(C) In-tube SPME (D) Dispersive Liquid-Liquid Microextraction
20. In Gas-Liquid Chromatography, what is the primary factor that causes separation between different analytes if the stationary phase is non-polar?
- (A) The pH of the carrier gas (B) The ionization potential within the carrier gas
(C) The viscosity of the liquid stationary phase (D) The vapor pressure and boiling point of the compounds
21. Why is 'LC-MS grade' acetonitrile preferred over 'HPLC grade' when performing trace-level pharmaceutical analysis via Mass Spectrometry?
- (A) Elimination of all organic carbon components (B) Lower waste steam pressure for safer handling
(C) Dedicated removal of trace metal ions and alkali salts (D) Higher UV transparency at 190 nm
22. Why are ammonium acetate and ammonium formate preferred as buffers in HILIC-MS applications?
- (A) Prevent the water-rich layer on the stationary phase (B) They react with the silica surface to increase the column's lifespan
(C) They act as chiral selectors for separation of basic racemic drug (D) They are volatile & soluble in high concentrations of organic solvents
23. Portable spectrometers are useful for-
- (A) Large labs only (B) Field analysis
(C) Data storage (D) Sampling
24. What spectral range is typically covered by the monochromator in an advanced TLC Scanner like the Scanner-IV?
- (A) 10 to 100 nm (B) 254 to 366 nm
(C) 400 to 700 nm (D) 190 to 900 nm
25. What happens to the retention time (t_R) of an analyte if the column temperature is increased in either HPLC or GC?
- (A) Retention time decreases in GC but increases in HPLC (B) Retention time is unaffected as it is a constant of the analyte
(C) Retention time generally decreases (D) Retention time increases due to higher mobile phase viscosity
26. Ninhydrin Spray reagent is specially used for the detection of-
- (A) Terpenoids (B) Alkaloid
(C) Amino acids (D) Glycosides

27. How does 'Gradient Elution' differ from 'Isocratic Elution' in terms of mobile phase management?
- (A) Gradient elution refers to the use of gravity to pull the solvent through the column
- (B) Isocratic elution is exclusively used for Mass Spectrometry detection
- (C) The flow rate is kept constant in isocratic but varies in gradient elution
- (D) The composition of the mobile phase changes over time in gradient elution
28. Volatile oils (VOs) are primarily composed of which class of compounds produced by a plant's secondary metabolism?
- (A) Long-chain aliphatic waxes
- (B) Isoprenoid-derived terpenoids
- (C) Triacylglycerols ($C_{55}H_{98}O_6$)
- (D) Polysaccharides and fiber
29. In context of steam distillation, what distinguishes 'hydrodistillation' from 'direct steam distillation'?
- (A) The temperature of the steam, which must be superheated to exactly 500 K in hydrodistillation
- (B) The requirement of a vacuum pump to lower the partial pressure of the volatile compounds
- (C) The use of organic solvents like hexane to increase the solubility of the bioactive compounds
- (D) The direct contact between the raw plant material and boiling water
30. Which validation parameter refers to the ability of an HPTLC method to remain unaffected by small, deliberate variations in parameters like mobile phase ratio or temperature?
- (A) Accuracy
- (B) Specificity
- (C) Robustness
- (D) Precision
31. In LC-MS, what is the primary advantage of using a Tandem Mass Spectrometer (MS/MS) over a single-stage Mass Spectrometer?
- (A) Lower consumption of solvent
- (B) Ability to analyse non-volatile sample
- (C) Faster liquid chromatography separation
- (D) Improved selectivity and structural information
32. In NMR (Nuclear Magnetic Resonance) Spectroscopy, what information does the chemical shift primarily provide?
- (A) The molecular weight of the compound
- (B) The electronic environment and connectivity of specific nuclei (e.g. 1H or ^{13}C)
- (C) The melting point of the crystalline structure
- (D) The rate of drug clearance in the bloodstream

33. Ion exchange chromatography is based on-
- (A) Electrostatic attraction (B) Adsorption chromatography
(C) Partition chromatography (D) Electrical mobility of ionic species
34. In gas chromatography, the basis for separation of the components of the volatile material is the difference in-
- (A) Molecular weight (B) Partition coefficients
(C) Conductivity (D) Molarity
35. During the structural elucidation of an unknown phytoconstituent, a 'Bathochromic shift' in the UV-Vis spectrum refers to-
- (A) An increase in the intensity of absorption (B) A shift to a shorter wavelength (Blue shift)
(C) A decrease in the intensity of absorption (D) A shift to a longer wavelength (Red shift)
36. Which lipid parameter is most useful for detecting the presence of 'Drying Oils' (highly unsaturated) in a sample-
- (A) Reichert-Meissl Value (B) Iodine Value
(C) Acid Value (D) Saponification Value
37. In HPLC analysis of herbal extracts, a 'Gradient Elution' is typically preferred over 'Isocratic Elution' because-
- (A) It eliminates the need for a stationary phase (B) It maintains a constant pressure throughout the run
(C) It is simpler and cheaper to implement (D) It allows for the separation of compounds with widely different polarities
38. The 'Balsam' class of phytoconstituents is chemically distinguished from 'Resins' by the presence of high amounts of-
- (A) Polysaccharides and gums (B) Alkaloidal salts
(C) Benzoic acid or Cinnamic acid (D) Essential oils and terpenes only
39. Lecithin is a complex mixture of polar lipids. Chemically, it is primarily composed of-
- (A) Phosphatidylcholine (B) Sterol glycosides
(C) Free fatty acids and glycerol (D) Triglycerides and waxes
40. Which reagent is used in the 'Keller-Kiliani' test to identify the 2-deoxy sugar component of cardiac glycosides?
- (A) Antimony trichloride in chloroform (B) Ferric chloride in glacial acetic acid and sulfuric acid
(C) Sodium picrate in ethanol (D) 3,5-Dinitrobenzoic acid

41. In Mass Spectrometry (MS) of secondary metabolites, the 'Base Peak' is defined as?
- (A) The peak with the lowest m/z ratio
(B) The peak representing the molecular weight of the compound
(C) The peak caused by the loss of a water molecule
(D) The peak with the highest relative abundance
42. Which functional group in a molecule would cause a 'Hypsochromic shift' (Blue shift) in the UV spectrum if it becomes protonated?
- (A) Aniline (-NH₂) group
(B) Carbonyl (C = O) group
(C) Phenolic (-OH) group
(D) Aliphatic methyl group
43. In the 'Modified Borntrager's Test,' why is ferric chloride added to the sample before extraction?
- (A) To form a complex with the sugar moiety for better visibility
(B) To neutralize the ammonia used in the final step
(C) To precipitate proteins that might interfere with the color
(D) To oxidize anthranols (reduced forms) into anthraquinones
44. When performing a 'Saponification Value' test, why is a 'Blank Titration' required?
- (A) To calibrate the pH meter before starting
(B) To account for the amount of alkali consumed by the solvent and heat during the process
(C) To determine the exact concentration of the fatty acid
(D) To neutralize the free fatty acids in the sample first
45. What is the primary reason for using 'Acidified water' or 'Alcohol' when extracting alkaloids from plant material?
- (A) To increase the boiling point of the solvent for better penetration
(B) To denature the enzymes that might degrade the glycosides
(C) To prevent the oxidation of the phytochemicals
(D) To convert the insoluble free bases into soluble salts
46. Which of the following describes 'Anthocyanins,' the pigments responsible for red, blue, and purple colors in plants?
- (A) They are pH-sensitive flavonoid glycosides
(B) They are nitrogen-containing betalains
(C) They are complex tannins that precipitate proteins
(D) They are lipid-soluble carotenoids
47. Which class of lipids is characterized by being 'Unsaponifiable,' meaning they do not contain fatty acids and cannot be turned into soap?
- (A) Waxes
(B) Phospholipids
(C) Sterols and Terpenes
(D) Triglycerides

48. Which of the following describes 'Fixed Oils' as opposed to 'Volatile Oils'?
- (A) They possess a characteristic strong aroma (B) They are soluble in 70% alcohol
- (C) They are composed primarily of terpene derivatives (D) They leave a permanent translucent stain on paper and cannot be distilled
49. What is the function of 'Mayer's Reagent' in the general screening of plant extracts?
- (A) To detect the presence of tannins via a blue-black color (B) To confirm the presence of steroids through a green fluorescent ring
- (C) To identify reducing sugars through a red precipitate (D) To produce a cream-colored precipitate in the presence of alkaloids
50. In 'Analytical Method Validation,' the ability of a method to obtain results proportional to the concentration is known as?
- (A) Precision (B) Linearity
- (C) Accuracy (D) Sensitivity

End

1. In chronic toxicity studies, which of the following is a key serum parameter is used to assess Kidney damage in rats?
 - (A) SGPT
 - (B) Calcium
 - (C) Alkaline Phosphatase
 - (D) Blood urea nitrogen
2. LD50/ED50 is known as-
 - (A) Therapeutic index of drug
 - (B) Bioavailability of drug
 - (C) Half-life of drug
 - (D) Volume of distribution of drug
3. The drug administration in albino mice and place on Rota rod is used to measure its-
 - (A) Anti-psychotic activity
 - (B) Muscle relaxant activity
 - (C) Exploratory activity
 - (D) Skeletal muscular strength activity
4. What is role of Caspase-3 and Caspase-9 in apoptosis?
 - (A) Act as regulators in cell
 - (B) Act as stimulator at cell membrane
 - (C) Act as executors in cell
 - (D) Act as signal transducer at cell membrane
5. Pentylene tetrazole injection in mice produces which of the following disease like symptoms?
 - (A) Psychosis
 - (B) Anxiety
 - (C) Epilepsy
 - (D) Depression
6. Dopamine is not used to treat Anti-parkinsonism disorder because of its following property-
 - (A) Not cross the blood brain barrier
 - (B) Metabolised through first pass metabolism
 - (C) Not cross GI tract barrier
 - (D) Fast excretion from the body
7. Which of the following test is used for evaluation of cytotoxicity of drug?
 - (A) In vivo micronuclei test
 - (B) Chromosomal aberration test
 - (C) MTT test
 - (D) Ames test
8. Which of the following chemical is used to produce liver cirrhosis in albino rats?
 - (A) Acetic acid
 - (B) Methotrexate
 - (C) Alloxan
 - (D) Carbon tetrachloride
9. For measuring Anti-arthritis activity, which of the following instrument is used?
 - (A) Plethysmometer
 - (B) Cook's pole climbing apparatus
 - (C) Hot plate
 - (D) Telethermometer
10. Which of the following test is used to measure exploratory behavior of mice?
 - (A) Cooke's pole climbing test
 - (B) Tunnel board test
 - (C) Plus maze test
 - (D) Behaviour despair test

11. Which of following genetic strain of rat is commonly used for metabolic disease evaluation?
- (A) Charles Foster rats (B) Hartley rats
(C) New Zealand Dwarf rats (D) Zucker fatty rats
12. Which of the following statement describe the term Chemical antagonism?-
- (A) Drugs acts on different receptors (B) Drug increase metabolism of other drug
(C) Drugs combine in the solution, (D) Antagonist bind to receptor active sites and
inactivating the drug inhibit the effects
13. Which type of receptor is typically involves the fastest response time (in milliseconds)?
- (A) Ligand gated ion channels (B) Enzyme-linked receptor
(C) Nuclear receptor (D) G-Protein coupled receptor
14. Isolated Guinea pig ileum is most widely used evaluation method and sensitive to-
- (A) Histamine (B) Paracetamol
(C) Acetic acid (D) Serotonin
15. Formalin injection in albino rats produces-
- (A) Immobility response (B) Tail Flick response
(C) Head shaking response (D) Paw licking pain response
16. Which of the following test is commonly used to evaluate Allergic reaction?
- (A) Patch test (B) Skin prick test
(C) Eliza for IgE (D) Coombs test
17. Injection of Doxorubicin in albino rats produces-
- (A) Respiratory damage (B) Colon ulcer
(C) Cardiac damage (D) Kidney damage
18. Which of the following disease is NOT an autoimmune disorder?
- (A) Rheumatoid arthritis (B) Fatty liver
(C) Lupus (D) Myasthenia gravis
19. Which of following standard drug is used for evaluation of Anti-psychotic activity in mice?
- (A) Diazepam (B) Indomethacin
(C) Chlorpromazine (D) Phenobarbitone
20. One of the following is NOT included in 4Rs theory as per CCSEA and Animal care guideline-
- (A) Rehabilitation (B) Refinement
(C) Replacement (D) Reminiscence

21. Lipinski rules of 5 is used for-
- (A) Docking (B) Drug likeness
(C) Similarity search (D) Dynamic simulation
22. As per CCSEA, Form-B is used for-
- (A) Record of animal stock (B) Record of temperature and humidity
(C) Approval of animal breeding (D) Approval of animal study protocol
23. Which chemical is used to induce Kidney damage in albino rats?
- (A) Indomethacin (B) Adrenalin
(C) Gentamycin (D) Galactosamine
24. Animal house of ITRA approved and registered for one of following category under CCSEA?
- (A) Education (E) (B) Research for Ayurveda (Ra)
(C) Research for Education (Re) (D) Research for Commercial (Rc)
25. During the drug discovery process, what is the primary goal of 'Hit-to-Lead' optimization??
- (A) To determine tentative price (B) To conduct large human trial
(C) To file the patent for new lead (D) To refine library for more potent lead
26. OECD 420, 423 and 425 guidelines describe the limit test at what dose level?
- (A) 2000 mg/kg (B) 1000 mg/kg
(C) 1500 mg/kg (D) 500 mg/kg
27. What is primary use of High Throughput Screening in new drug discovery?
- (A) Prepare a drug for industrial large scale production (B) Rapidly testing thousands of compound for selected target
(C) Find the exact formulation (D) Analysing the result of clinical data
28. What is body surface area ratio factor for converting Human (70 kg) dose to mouse (20 g) dose?
- (A) 0.026 (B) 0.018
(C) 0.0018 (D) 0.0026
29. Why are female rats often preferred over males in oral acute toxicity protocols?
- (A) Males are too expensive (B) Females are less sensitive to toxic insult
(C) Female are easy to handle (D) Females are more sensitive to toxic insult
30. For how many days observation done after drug administration in acute oral toxicity study?
- (A) 14 days (B) 01 day
(C) 07 days (D) 21 days

31. Diuretic drugs are used in the following disease conditions except-
- (A) Antihypertensive drugs (B) Oedema
(C) Severe electrolyte imbalance (D) Renal stone
32. In Preclinical, what is the 'No-Observed-Adverse-Effect Level' (NOAEL) used to calculate?
- (A) Serum concentration of drug (B) Number of receptors affected by drugs
(C) Numbers of protein binding (D) Safe starting dose for human Phase I trail
33. The protocol for use of large animal in experiments, it is to be approved by-
- (A) Institutional Ethics Committee (B) On recommendation of IAEC, by CCSEA
(C) Institutional Biosafety Committee (D) Institutional Animal Ethics Committee
34. Hole board test for drug evaluation is used to assess the-
- (A) Anti-anxiety activity in rats (B) Hyperactivity activity of rats
(C) Muscle relaxant activity of rats (D) Hyperkinesia in rats
35. Rat tail immersion test is used for evaluation of Ayurvedic drugs for its-
- (A) Anti-inflammatory activity (B) Analgesic activity
(C) Anti-depressant activity (D) Tail smooth muscle relaxant activity
36. For the treatment of Asthma, one of the following classes of drug is NOT used?
- (A) Bronchodilators (B) Corticosteroids
(C) Anti-inflammatory drugs (D) Adenyl cyclase inhibitors
37. In rodents, generally chronic toxicity study of Ayush drug is carried out for how many days?
- (A) More than 90 days (B) 60 days
(C) 4 weeks (D) 12 weeks
38. Oral administration of Indomethacin in albino rats is used to induce-
- (A) Pancreas damage in rats (B) Peptic ulcer and intestinal damage in rats
(C) Gall bladder damage in rats (D) Liver toxicity in rats
39. For aggravation of ulcer-induced by pyloric ligation in albino rats, which one of the chemical is most widely used with this model?
- (A) Diclophenac (B) Acetic acid
(C) Aspirin (D) Paracetamol
40. What is dose of streptozotocine for induction of type-II diabetes mellitus in albino rats, if high fat diet for 14 days used along with STZ, intraperitoneal injection?
- (A) 35-40 mg/kg (B) 45-50 mg/kg
(C) 15-20 mg/kg (D) 50-60 mg/kg

41. In safety pharmacology, what is the 'Maximum Tolerated Dose' (MTD)?
(A) Dose tolerated by 50% animals (B) Dose that does not kill 50% animals
(C) Dose efficient level (D) Highest dose that not cause adverse effects
42. Which of the following stage, is NOT seen in female rat oestrous cycle?
(A) Oestrous Phase (B) Pre-oestrous
(C) Pro-oestrous (D) Di-oestrous
43. In pharmacokinetics, what does 'AUC' stand for?
(A) Absorption uptake coefficient (B) Area under curve
(C) Automated usage concentration (D) Active unit concentration
44. Generally, serum immunoglobulin (IgG and IgM) levels are estimated for the evaluation of-
(A) Humoral immune response (B) Anaphylaxis reaction
(C) Cytotoxicity response (D) Anti-inflammatory response
45. If drug having adaptogenic effects, which of the following effect is observed during stress induced swimming test in albino rats?
(A) Brewer's yeast (B) Cisplatin
(C) Reversal of hypothermia (D) Increase of hypothermia
46. Which factor is a major challenge when translating drug efficacy from mice to humans?
(A) Mice not have immune system (B) Mice are too large for laboratory scale
(C) Mice not have DNA as human (D) Mice have much higher metabolic rate
47. Which of these is a 'Refinement' technique used in animal surgery?
(A) Use of proper nutrient (B) Increasing the humidity of experimental room
(C) Proper food during surgery (D) Use of proper anaesthesia and analgesia
48. Apoptotic bodies can be recognized with the presence of ____ on the surface of cell.
(A) Phosphatidyl serin (B) Phosphatidyl inositol
(C) Phosphatidyl tyrosin (D) Phosphatidyl choline
49. The preparation that appears identical to the preparation of an active drug but which has NO any biological or therapeutic activity is called as-
(A) Agonist drug (B) Orphan drug
(C) Placebo (D) False drug
50. Which of following chemical is used as positive control in chromosomal aberration model?
(A) Colchicine (B) Cyclophosphamide
(C) Reserpine (D) Acetylcholine

End

1. Proteomics studies in biological sample means evaluation of-
 - (A) DNA sequences
 - (B) RNA expression
 - (C) Protein structure and function
 - (D) Metabolites
2. Which of the following chapter is a deal with Ayurvedic, Siddha and Unani drugs as per Drugs and Cosmetics act 1940?
 - (A) Chapter II
 - (B) Chapter I
 - (C) Chapter IV
 - (D) Chapter IV A
3. In Clinical trial, Phase IV study is known as-
 - (A) Safety trial in healthy volunteers
 - (B) Clinical post market surveillance
 - (C) Multi-centric clinical trial
 - (D) Efficacy trial in two groups of patients
4. In Drug and Cosmetics Act 1940, which Schedule includes the textbooks of Ayurveda?
 - (A) First schedule A
 - (B) First schedule B
 - (C) Schedule D
 - (D) Schedule X
5. Which of the following Vaccine is produced by Recombinant DNA Technology method?
 - (A) Oral Polio
 - (B) Covid -19
 - (C) Rabies
 - (D) Hepatitis A
6. From Taxus brevifolia, which Anti-cancer developed through Reverse Pharmacology?
 - (A) Taxol
 - (B) Vasicine
 - (C) Vincristine
 - (D) Etoposide
7. Insulin and Growth factor acts through which of the following receptor in the human body?
 - (A) Nuclear receptor
 - (B) Ion linked channels receptor
 - (C) G-protein coupled receptor
 - (D) Protein kinase receptor
8. Which of the following instrument is used to measure the plant cellular constituent?
 - (A) Sismometer
 - (B) Micrometer
 - (C) Lactometer
 - (D) Thermometer
9. Which part and volume of Ayurvedic Pharmacopoeia of India contains Metal and Mineral components of Ayurvedic drugs?
 - (A) API Part-I, Volume V
 - (B) API Part-II, Volume VII
 - (C) API Part-II, Volume Vi
 - (D) API Part-I, Volume VII
10. International Yoga Day is celebrated globally on which date?
 - (A) 20th June
 - (B) 21st July
 - (C) 21st June
 - (D) 15th August

11. As per Ayurvedic classics, which of the following substance should not be heated?
- (A) Madhu (B) Ghee
(C) Kshira (D) Taila
12. Under which Rule of the Drugs and Cosmetics Rules, 1945, is the regulation of advertisement of Ayush products introduced to prevent misleading claims?
- (A) Rule 160 (B) Rule 170
(C) Rule 150 (D) Rule 157
13. Phase-II Clinical trials are typically performed on which the group of population?
- (A) Healthy volunteer (20-80) (B) Thousands of patients at multiple site
(C) Patients in the OPD (D) Patients (100-300) who have target disease
14. Which of system, added to original Ayush acronym, originated from the Himalayan region?
- (A) Siddha (B) Unani
(C) Sowa-Rigpa (D) Naturopathy
15. In drug discovery, what is mean by 'Lead Compound'?
- (A) A drug candidate bind to protein (B) Final compound ready for marketing
(C) Lead use for Phase III study (D) Molecule shows promising activity to target
16. Biosensors is analytical device is primarily used for which of the following purpose?
- (A) Separation (B) Biological detection
(C) Aggregation (D) Sample sorting
17. Computational chemistry is used for-
- (A) Drug molecular modeling (B) Drug synthesis
(C) Drug Isolation (D) Crude drug extraction
18. As per the Drugs and Cosmetics Rules, 1945, what is the maximum permitted percentage of self-generated Alcohol in Mritasanjivani Sura?
- (A) 10% (B) 5%
(C) 16% (D) 12%
19. Green Analytical Chemistry emphasizes the-
- (A) Large sample use (B) Environmental sustainability
(C) Use of complex instrumentation (D) Removal of water from the methods
20. Data mining primarily involves the-
- (A) Data destruction (B) Data construction
(C) Pattern extraction (D) Hypothesis rejection

21. What is mean by Miniaturization in Analytical chemistry?
- (A) Increased reagent waste (B) Reduced reagent consumption
(C) Lower reagent sensitivity (D) Increased reagent cost
22. The Chromatography technique separates the compounds based on its-
- (A) Differential partitioning (B) Concentration difference
(C) Temperature difference (D) Pressure difference
23. Which one of the following characteristic is NOT seen in Apoptotic cells?
- (A) Phagocytosis of apoptotic cell (B) Membrane blabbing
(C) Inflammation to near area of cell (D) Cellular condensation
24. Principal Component Analysis (PCA) primarily aims to:
- (A) Hypothesis testing (B) Dimensionality reduction
(C) Regression testing (D) Clustering analysis
25. The New Chemical Entity or INDs are mostly fails in which of the Drug Discovery process?
- (A) During multi-centric clinical trial (B) At the stage of registration
(C) During Phase I clinical trial (D) When drug enter to clinical trial from preclinical phase
26. Cluster analysis is most appropriate for -
- (A) Prediction (B) Regression testing
(C) Hypothesis testing (D) Grouping of similar observations
27. In scientific research the measurement of Accuracy means-
- (A) Precision (B) Robustness
(C) True closeness (D) Specificity
28. In rodents, In vivo micronuclei test is used for assessment of-
- (A) Carcinogenicity (B) Mutagenicity
(C) Reproductive toxicity (D) Dermal toxicity
29. Metabolomics mainly focuses on analysis of:
- (A) Genome (B) Proteome
(C) Small molecule metabolites (D) Chromosomes
30. Originally, which Ayurvedic formulation was developed by CCRAS, New Delhi for the treatment of Malaria?
- (A) Ayush-SG (B) Ayush-56
(C) Ayush-82 (D) Ayush-64

31. Which type of study is best to document the traditional uses of Medicinal plants?
(A) Experimental study (B) Ethnobotanical survey study
(C) Cohort study (D) Meta-analysis study
32. Which one of the following 't' test is used post ANOVA?
(A) Wilcoxon signed rank test (B) Chi square test
(C) Students 't' test (D) Dunnette's 't' test
33. As per IPR Act, the exclusive rights are provided to patentee for ____ years.
(A) 20 years (B) 10 years
(C) 15 years (D) 05 years
34. In biological sample, the method of protein estimation is originally given by-
(A) Timbrell (1982) (B) Burtis (1999)
(C) Lowry's (1951) (D) Ohkawa (1978)
35. Blinding in research study primarily designated to reduces the-
(A) Sampling bias (B) Measurement bias
(C) Selection bias (D) Random error
36. Which of the following is considered 'Plagiarism' in scientific writing?
(A) Presenting someone else work as your own without credit (B) Paraphrasing the author's idea with a proper citation
(C) Using the common knowledge (D) Citing your own previous work in new paper
37. Sample size determination in herbal drug research mainly depends on-
(A) Color of drug (B) Smell of drug
(C) Variability of data (D) Collection site of drug
38. The galactagogue effect of *Asparagus racemosa* is primarily attributed to-
(A) Suppression of mammary gland development (B) Up-regulation of prolactin levels through phytoestrogenic activity
(C) Inhibition of oxytocin receptors (D) Down regulation of prolactin secretion
39. Which parameter is generally used to confirm the Identity and authentication of plant drug?
(A) Authenticate by Vendor (B) Identify by the local plant collector
(C) Market survey by the buyer (D) Organoleptic and microscopic evaluation
40. A 'Hypothesis' in a research project is best described as:
(A) A testable predication about relationship between variables (B) A random guess of the result with no background knowledge
(C) A proven scientific facts (D) A summary of work to be done

41. Amlaki is primarily responsible for its hepatoprotective effects in experimental studies due to-
- (A) Alkaloids enhance bile secretion through cholinergic stimulation (B) Hydrolyzable tannins reduce LPO and enhance antioxidant enzyme activity
(C) Saponins bind to hepatic toxins and neutralize them in circulation (D) Volatile oils that increase hepatic blood flow via vasodilation
42. What is the shelf life of Churna as per Sharangdhara Samhita?
- (A) 2 years (B) 2 months
(C) 6 months (D) 4 months
43. Which property of plant cells allows an entire plant to be regenerated from a single cell or explant in a nutrient medium?
- (A) Totipotency (B) Dedifferentiation
(C) Pluripotency (D) Senescence
44. Somaclonal variations are those variations that appear in:
- (A) Plants grown in soil conditions (B) Plant produced through sexual hybridization
(C) Genetically modified organism (D) Plant regenerated from tissue culture
45. Which enzyme is required to obtain a 'Naked' protoplast from a plant cell?
- (A) Amylase (B) Ligase
(C) Cellulose and Pectin (D) Protease
46. In Ayurvedic drug testing, what does the 'Ash Value' indicate?
- (A) Presence of protein materials (B) Presence of organic salts and soil
(C) Presence of carbohydrate (D) Presence of inorganic salts, silica & impurities
47. The concept of 'Anupana' in drug administration is intended to:
- (A) Neutralize the drug for efficacy (B) To improve absorption & efficacy of main drug
(C) Make medicinal taste better (D) Preserve the drug for longer duration
48. Which type of extract is prepared by boiling herbs in water & then concentrating it?
- (A) Phant (B) Ghana
(C) Hima (D) Asava
49. Which of the following Dravya is known as 'Shishubhaisajya'?
- (A) Haritaki (B) Atibala
(C) Ativisha (D) Sunthi
50. Which of the following is NOT the ingredient of Sitopaladi Churna?
- (A) Lavang (B) Choti Ela
(C) Pippali (D) Vanshlochan

1. The appearance of "Tailabha" is characteristic of-
(A) Mridu Parpati Paka (B) Tivra Parpati Paka
(C) Khara Parpati Paka (D) Madhyam Parpati Paka
2. For the processing of Dhanyabhrka, how much quantity of Dhanya is used as per Ayurveda Prakasha?
(A) $\frac{1}{2}$ part (B) $\frac{1}{4}$ part
(C) $\frac{1}{6}$ part (D) $\frac{1}{8}$ part
3. The ratio of Lime powder and Water in the preparation of Churnodhaka is-
(A) 1: 245 (B) 245:1
(C) 1:240 (D) 1:2
4. Which one the following Puta is used in the Shodhana process of Gandhaka?
(A) Gaja Puta (B) Laghu Puta
(C) Kurma Puta (D) Varaha Puta
5. Nirgandha and Sagni Murcchana are-
(A) Mugdha Rasa (B) Kajjali
(C) Tribhuvan Kriti rasa (D) Rasapuspha
6. Addition of a Dravya in a Melted Dhatu/Dravya is called as-
(A) Avapa (B) Nirvapa
(C) Dhalan (D) Galana
7. How much quantity of Lavana used as Praksepaka Dravya along with Swarasa?
(A) One Karsa (B) One Pala
(C) One Masha (D) One Kola
8. What is the Shelf life of Laghu Paki, Aushdhi?
(A) 2 years (B) 2 months
(C) 1 month (D) 1 year
9. As per Raratarangini, for using of Kwatha for Bhavana Drava, what should be the reduction of liquid quantity for the preparation of Kwatha Drava?
(A) $\frac{1}{8}$ part (B) $\frac{1}{4}$ part
(C) $\frac{1}{2}$ part (D) $\frac{1}{16}$ part
10. Vatsanabha is one of the ingredients of-
(A) Ghana Parpati (B) Tamra Parpati
(C) Bola Parpati (D) Vjjay Parpati

11. For the preparation of Sandhana Kalpana, if proportion of Guda is not specified then it should be taken as-
- (A) One Drona (B) One Adhaka
(C) One Tula (D) One Prastha
12. Which Bhasma is one of the ingredients of Chandraprabha Vati?
- (A) Swarna Bhasma (B) Rajat bhasma
(C) Raupya Bhasma (D) Swarna Makshika Bhasma
13. Shodhana of Rakta Chitrak Mool should done in-
- (A) Churnodhaka (B) Godugdha
(C) Gomutra (D) Kanji
14. According to Rasatarangini, the ratio of Ash and Water in the preparation of Kshara are-
- (A) 1:8 (B) 1:6
(C) 1:4 (D) 1:2
15. When Takra used as media, how much days are required for the completion of Sneha paka?
- (A) 2 days (B) 12 days
(C) 3 days (D) 5 days
16. The specific test for "Haratala Bhasma" is-
- (A) Slakshnatva (B) Rekhapurnatva
(C) Sukshmatva (D) Nirdhuma
17. How much quantity of Khadira Sara is used in the preparation of Lavangadi Vati?
- (A) 08 parts (B) 02 parts
(C) 03 parts (D) 01 parts
18. According to Sushruta Samhita, the numbers of Kashaya Kalpana are-
- (A) 05 (B) 06
(C) 10 (D) 09
19. According to Rasatarangini, the therapeutic dose of Swarna Bhasma is-
- (A) $\frac{1}{8}$ to $\frac{1}{4}$ Ratti (B) $\frac{1}{2}$ to $\frac{1}{3}$ Ratti
(C) $\frac{1}{6}$ to $\frac{1}{5}$ Ratti (D) $\frac{1}{10}$ to $\frac{1}{5}$ Ratti
20. According to Rasatarangini, the therapeutic dose of Suddha Kuchila beeja is-
- (A) $\frac{1}{6}$ to $\frac{1}{5}$ Ratti (B) $\frac{1}{2}$ to $\frac{1}{3}$ Ratti
(C) $\frac{1}{4}$ to 1 Ratti (D) 1 Ratti

21. Which of the following formulation is typically prepared with Ajadugdha (Goat milk)?
- (A) Shadabindu Taila (B) Anu Taila
(C) Jatyadhi taila (D) Kshirabala Taila
22. Pranorasendra is related with-
- (A) Vimal (B) Shilajatu
(C) Abhraka (D) Makshika
23. The Murchchana process of Ghrita destroys the-
- (A) Mala Dosha (B) Gandha Dosha
(C) Aamadosha (D) Agni Dosha
24. According to Yadavji Trikamji Acharya, the ratio of Drug, Milk and Water in the preparation of Ksheerapaka are-
- (A) 1:2:8 (B) 1:4:16
(C) 1:8:32 (D) 1:15:15
25. As per Ayurveda Prakasha, "Purusa Pramana" is applicable for which of the mineral collection?
- (A) Krishna Vajrabhraka (B) Haratala
(C) Mandura (D) Gauripashana
26. Bhavana Dravya of Sanjivani Vati is-
- (A) Ghritakumari (B) Matulunga Rasa
(C) Amalaki Swarasa (D) Go-mutra
27. The specific metallic container used in the preparation of Kushmanda Avaleha is-
- (A) Kansya (B) Loha
(C) Tamra (D) 10 Karsha
28. The measure One Tula resembles to-
- (A) 10 Pala (B) 100 Pala
(C) 50 Pala (D) 1000 Pala
29. According to Charak Samhita, ideal season for collection of Moola of plant is-
- (A) Sharada (B) Varshavata
(C) Grishma (D) Hemanta
30. The quantities of Amalaki Phala recommended in Chyavanprasha are-
- (A) 100 in number (B) 1000 in number
(C) 100 number (D) 500 in number

31. According to Sharangadhara Samhita, synonyms of Choorna is-
- (A) Raja, Kshod (B) Avap, Kshod
(C) Prakshep, Avap (D) Prakshep, Raja
32. The synonym of Musha is-
- (A) Kosthi (B) Yantra
(C) Vahnimitra (D) Bhrastri
33. As per Acharya Sharngdhar, Which variety of Chandana is used in the preparation of Churna Kalpa?
- (A) Sweta Chandana (B) Rakta Chandana
(C) Both (D) None of these
34. A bhavana dravya for Tribhuvankirti rasa is-
- (A) Nimbu swarasa (B) Dhatur patra swarasa
(C) Triphala kwatha (D) Gomutra
35. For how many days, Bhavana should be given for the preparation of Arogyavardhini Gutika?
- (A) 1 Prahara (B) 2 days
(C) 4 Prahara (D) 1 days
36. According to Siddhayoga Samgraha, which vessel is used for preparation of Kshara Parpati?
- (A) Copper vessel (B) Iron vessel
(C) Tin vessel (D) Clay vessel
37. Which one of the following is the generally used as fermenting agent for the preparation of Asava-Arista?
- (A) Dhatki moola (B) Triphala churna
(C) Dhatki pushpa (D) Triphala kwatha
38. "Phenashanti" is the testing criteria mentioned for which of the dosage form?
- (A) Siddha Ghrita (B) Siddha Taila
(C) Siddha Vasa (D) Siddha Gutika
39. Author of Rasaratnasamucchaya is -
- (A) Vagbhata (B) Madhava Upadhyaya
(C) Nagarjun (D) Nityanath
40. How many numbers of Upala (Cow Dung Cakes) are advocated in Gaja Puta?
- (A) 100 (B) 1000
(C) 20 (D) 50

41. "Tuvari is categorized under which one of the following group?
(A) Maharasa (B) Uparasa
(C) Sadharana Rasa (D) Upavisha
42. According to Sharangdhara Samhita, which dravya is not included in Upadhatu?
(A) Makshika (B) Abhraka
(C) Pittala (D) Shila
43. The colour of the Naga bhasma is resembles with-
(A) Istika Varna (B) Sweta Varna
(C) Tamra Varna (D) Kapota Varna
44. According to D. A. Kulkarni, Chemically the Yavakharsa is -
(A) NaHCO_3 (B) Na_2CO_3
(C) NaOH (D) $\text{Na}_2\text{B}_4\text{O}_7$
45. In a Rasashala, Rasa Vairabha is ideally placed in which of the following direction?
(A) Purva disha (B) Agneya disha
(C) Ishanya disha (D) Dakshina disha
46. According to Rasa Ratna Samucchaya, Drutadrava mahabhar is characteristic of-
(A) Vanga (B) Tamra
(C) Yashad (D) Naga
47. In Sneha paka, Pushpha kalka is used than quantity should be taken –
(A) $\frac{1}{4}$ part (B) $\frac{1}{8}$ part
(C) $\frac{1}{6}$ part (D) $\frac{1}{10}$ part
48. According to Rasa Ratna Samucchaya, Drutadrava mahabhar is characteristic of-
(A) Vanga (B) Tamra
(C) Yashad (D) Naga
49. How many numbers of chapters are there in Rasatarangini?
(A) 21 (B) 24
(C) 15 (D) 20
50. The melting point of Silver is-
(A) 960°C (B) 965°C
(C) 560°C (D) 1064°C

End