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**Ph.D. ENTRANCE EXAMINATION, August-2026**

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|---------------------------------|---------------------------------|
| Name of Candidate .....         | Answer Sheet No. ....           |
| Roll No. of the Candidate ..... | Signature of the Candidate..... |
| Date of Examination .....       | Signature of the Invigilator(s) |
|                                 | 1. ....                         |
|                                 | 2. ....                         |

**Time: 2 Hours****Maximum Marks: 100****IMPORTANT INSTRUCTIONS**

- i. The question paper is in the form of Test-Booklet containing **100 (Hundred)** questions. Each question may carry maximum four answer marked. (A), (B), (C) and (D) out of which only one is correct.
- ii. There are 100 multiple choice questions, each question carrying 1 mark. The test includes 50 questions of Research Methodology (Part A) and 50 questions of the subject/Domain (Part B).
- iii. On receipt of the Test-Booklet (Question Paper), the candidate should immediately check it and ensure that it contains all the pages, i.e., **100** questions (50 in Part-A+50 in Part-B). Discrepancy, if any, should be reported by the candidate to the invigilator immediately after receiving the Test-Booklet.
- iv. A separate Answer- Sheet is provided with the Test-Booklet/Question Paper. On this sheet there are 100 rows containing four circles each. One row pertains to one question.
- v. The candidate should write his/her roll number at the places provided on the cover page of the Test-Booklet/ Question Paper and on Answer Sheet and NOWHERE ELSE.
- vi. No second test -Booklet /Question Paper and Answer -Sheet will be given to a candidate. The candidates are advised to be careful in handling it and writing the answer on the Answer-Sheet.
- vii. For every correct answer of the question **One (1) mark will be awarded**. For every unattempted question/ wrong answer, zero (0) mark shall be awarded. **There is no Negative Marking**.
- viii. Marking shall be done only on the basis of answers responded on the Answer- Sheet.
- ix. To mark the answer on the Answer- Sheet, candidate should **darken** the appropriate circle in the row of each question with Blue or Black pen.
- x. For each question, only one circle should be darkened as a mark of the answer adopted by the candidate. If more than one circle for the question are found darkened or with one black circle any other circle carries any mark, the question will be treated as cancelled.
- xi. The candidates should not remove any paper from the Test- Booklet/Question Paper. Attempting to remove any paper shall be liable to be punished for use of unfair means.
- xii. Rough work may be done on the blank space provided in the Test- Booklet /Question Paper only.
- xiii. Mobile phones (even in Switch -off mode) and such other communication/ programmable devices are not allowed inside the examination hall.
- xiv. No candidate shall be permitted to leave the examination hall before the expiry of the time.

|                                                               |
|---------------------------------------------------------------|
| <b>DO NOT OPEN THIS QUESTION BOOKLET UNTIL ASKED TO DO SO</b> |
|---------------------------------------------------------------|

**(PART-A)**

1. Which of the following statements is true about the collection of data?
  - a. The data that is collected from the place of origin is known as primary data
  - b. The data that is collected from the place of origin is known as secondary data
  - c. The data that is collected from the place of origin is known as tertiary data
  - d. None of the above
2. Which of the following is the main point of difference between primary data and secondary data?
  - a. The collection of secondary data is costlier and more time consuming when compared to primary data
  - b. The secondary data is always original whereas the primary data is not
  - c. The primary data is much more reliable than secondary data because it is collected directly from respondents
  - d. None of the above
3. Which of the following is an example of qualitative data?
  - a. Temperature readings in Celsius
  - b. Monthly income in dollars
  - c. Transcript of an interview
  - d. Total population count
4. How is qualitative data usually analyzed?
  - a) By using statistical formulas and graphs
  - b) By finding themes, patterns, and categories
  - c) By running computer software for percentages
  - d) By measuring numerical weight or length
5. Which graph is used to show cumulative frequency?
  - a) Bar graph
  - b) Ogive
  - c) Histogram
  - d) Pie chart
6. Which chart is most suitable to show the comparison of parts to a whole?
  - a) Line graph
  - b) Histogram
  - c) Frequency polygon
  - d) Pie chart
7. In a moderately asymmetrical (skewed) distribution, what is the empirical relationship between mean, median, and mode?
  - a.  $\text{Mean} - \text{Mode} = 3(\text{Mean} - \text{Median})$
  - b.  $\text{Mean} = \text{Median} + \text{Mode}$
  - c.  $\text{Mode} = 3\text{Mean} - 2\text{Median}$
  - d.  $\text{Median} = \text{Mean} / \text{Mode}$
8. Which measure of central tendency includes the magnitude of scores?
  - a. Mean
  - b. Mode
  - c. Median
  - d. Range
9. What is the mean of the following numbers: 23, 45, 87, 40, 50?
  - a. 59
  - b. 49
  - c. 56

d. 39

10. Which of the following are methods under measures of dispersion?
- Standard deviation
  - Mean deviation
  - Range
  - All of the above
11. \_\_\_\_\_ and \_\_\_\_\_ are types of measures of dispersion.
- Nominal, Real
  - Nominal, Relative
  - Absolute, Relative
  - Real, Relative
12. The standard deviation of a set of 90 observations is 105. If the value of each observation is decreased by 9, then the new standard deviation of these observations would be \_\_\_\_\_.
- 96
  - 105
  - 100
  - None of the above
13. The average of squared deviations from the arithmetic mean is known as \_\_\_\_\_.
- Quartile deviation
  - Standard deviation
  - Variance
  - None of the above
14. If Mohan secures 97 percentiles in an examination, it means that his position is below \_\_\_\_\_ of the total candidates who had appeared in the exam.
- 97 percent
  - 3 percent
  - 90 percent
  - None of the above
15. Which of the following cannot be calculated for open-ended distributions?
- Standard deviation
  - Mean deviation
  - Range
  - None of the above
16. The interquartile range (IQR) is calculated as:
- $Q3 - Q1$
  - $Q3 + Q1$
  - $Q1 - Q3$
  - $Q1 \times Q3$
17. Which of the following statements is TRUE?
- Standard deviation is less reliable than range.
  - Mean deviation uses all scores.
  - Quartile deviation uses the entire dataset.
  - Range uses all scores.
18. If range is 20 and the smallest value is 5, the largest value is:
- 25
  - 15
  - 30

- d. Cannot be determined
19. A distribution with low variability is considered:
- Scattered
  - Skewed
  - Consistent
  - Unreliable
20. Coefficient of variation is helpful in:
- Finding mode
  - Comparing variability between two datasets
  - Identifying mean
  - Finding median
21. If the variance is 16, then the standard deviation is:
- 8
  - 4
  - 2
  - 16
22. Kurtosis is a measure of:
- Central tendency
  - Dispersion
  - Symmetry
  - Skewness
23. Choose the correct option concerning the correlation analysis between 2 sets of data.
- Multiple correlations is a correlational analysis comparing two sets of data.
  - A partial correlation is a correlational analysis comparing two sets of data.
  - A simple correlation is a correlational analysis comparing two sets of data.
  - None of the preceding.
24. Which one of the below statements regarding the regression line is correct?
- The prediction equation is another name for a regression line.
  - A regression line is also referred to as the line of the average relationship.
  - The estimating equation is another name for a regression line.
  - All of the above.
25. Who introduced the term 'regression'?
- Karl Pearson
  - R.A Fischer
  - Croxtton and Cowden
  - Francis Galton.
26. Company A produces 10% defective products, Company B produces 20% defective products and C produces 5% defective products. If choosing a company is an equally likely event, then find the probability that the product chosen is defective.
- 0.12
  - 0.21
  - 0.22
  - 0.11
27. A well-defined research problem helps the researcher most by:
- Determining the exact budget
  - Guiding the selection of the research design and methods
  - Eliminating the need for a literature review
  - Guaranteeing publication in a journal

28. Why is a literature review critical during problem formulation?
- It proves that your bias is correct
  - It helps reveal gaps and inconsistencies in existing knowledge
  - It provides unrelated background facts
  - It replaces the need to state research objectives
29. Which of the following statement is correct?
- Reliability ensures the validity
  - Validity ensures reliability
  - Reliability and validity are independent of each other
  - Reliability does not depend on objectivity
30. The study in which the investigators attempt to trace an effect is known as:
- Survey Research
  - Summative Research
  - Historical Research
  - 'Ex-post Facto' Research
31. Generalized conclusion on the basis of a sample is technically known as:
- Data analysis and interpretation
  - Parameter inference
  - Statistical inference
  - All of the above
32. Authenticity of a research finding is its:
- Originality
  - Validity
  - Objectivity
  - All of the above
33. Which technique is generally followed when the population is finite?
- Area Sampling Technique
  - Purposive Sampling Technique
  - Systematic Sampling Technique
  - None of the above
34. Research problem is selected from the stand point of:
- Researcher's interest
  - Social relevance
  - Financial support
  - Availability of relevant literature
35. The research is always –
- Verifying the old knowledge
  - Exploring new knowledge
  - Filling the gap between knowledge
  - All of these
36. Manipulation of independent variable is always a part of
- Historical research
  - Fundamental research
  - Descriptive research
  - Experimental research
37. The Factorial Analysis is used:
- To know the relationship between two variables
  - To know the difference among the many variables

- c. To know the difference between two variables
  - d. To test the Hypothesis
38. Which of the following is classified in the category of the developmental research?
- a. Philosophical research
  - b. Action research
  - c. Descriptive research
  - d. All the above
39. What is the name of the conceptual framework in which the research is carried out?
- a. Research hypothesis
  - b. Research design
  - c. Research paradigm
  - d. Synopsis of Research
40. Which of the following features are considered as critical in qualitative research?
- a. Collecting data with the help of standardized research tools.
  - b. Design sampling with probability sample techniques.
  - c. Collecting data with bottom-up empirical evidence.
  - d. Gathering data with top-down schematic evidence.
41. Tippit table refers to as \_\_\_\_\_
- a. Table of random digits
  - b. The table used in sampling methods
  - c. The table used in statistical investigations
  - d. All of the above
42. What are the conditions in which Type-I error occurs?
- a. The null hypotheses get accepted even if it is false
  - b. The null hypotheses get rejected even if it is true
  - c. Both the null hypotheses as well as alternative hypotheses are rejected
  - d. None of the above
43. Research and Development become the index of development of the country. Which of the following reasons are true with regards to this statement?
- a. R&D targets human development
  - b. R&D can enhance people's standard of living in the country
  - c. R&D reflects the actual economic and social conditions being prevailed in the country
  - d. All the above
44. What is the main aim of interdisciplinary research?
- a. To over simplify the problem of research
  - b. To bring out the holistic approach to research
  - c. To create a new trend in research methodology
  - d. To reduce the emphasis on a single subject in the research domain
45. A researcher is interested in studying the prospects of a particular political party in an urban area. So, what tool should he prefer for the study?
- a. Rating Scale
  - b. Interview
  - c. Questionnaire
  - d. Schedule
46. The conclusions/findings of which type of research cannot be generalized to other situations?
- a. Casual Comparative Research
  - b. Historical Research
  - c. Descriptive Research

- d. Experimental Research
47. Which one is called non-probability sampling?
- Quota sampling
  - Cluster sampling
  - Systematic sampling
  - Stratified random sampling
48. What are the core elements of a dissertation?
- Introduction; Data Collection; Data Analysis; Conclusions and Recommendations
  - Executive Summary; Literature Review; Data Gathered; Conclusions; Bibliography
  - Research Plan; Research Data; Analysis; References
  - Introduction; Literature Review; Research Methodology; Results; Discussions and Conclusions
49. The "Sociogram" technique is used to study \_\_\_\_\_
- Vocational Interest
  - Human Relations
  - Professional Competence
  - Achievement Motivation
50. Action-research can be understood as \_\_\_\_\_
- A longitudinal research
  - An applied research
  - A kind of research being carried out to solve a specific problem
  - All of the above

**(PART-B)**

51. Which thermodynamic cycle is the theoretical air-standard cycle for a spark-ignition (SI) engine?
- a) Diesel cycle
  - b) Dual cycle
  - c) Otto cycle
  - d) Brayton cycle
52. Non-traditional (unconventional) machining processes are generally preferred for machining:
- a) Only soft, easily machinable materials
  - b) Hard and difficult-to-machine materials/complex shapes
  - c) Wood and timber only
  - d) Plastic components only
53. Poisson's ratio, within the elastic limit under simple uniaxial loading, is defined as the ratio of:
- a) Lateral strain to longitudinal strain
  - b) Applied stress to resulting strain
  - c) Longitudinal strain to lateral strain
  - d) Shear stress to normal stress
54. In a series hybrid electric vehicle configuration, the internal combustion engine:
- a) Directly drives the wheels through a mechanical transmission
  - b) Operates only at idle speed
  - c) Is not present at all
  - d) Drives a generator to produce electricity, which powers an electric motor that drives the wheels
55. In machining operations such as drilling and reaming, a jig is primarily used to:
- a) Hold and guide the cutting tool relative to the workpiece
  - b) Only clamp the workpiece without guiding the tool
  - c) Measure the surface finish achieved
  - d) Inspect the accuracy of finished gears
56. Case hardening is a surface treatment applied to a component in order to:
- a) Remove pre-existing surface defects only
  - b) Soften the entire cross-section of the component uniformly
  - c) Reduce the overall physical dimensions of the component
  - d) Produce a hard, wear-resistant outer surface while retaining a tough, ductile core
57. A differential in an automobile's drive train primarily allows:
- a) Equal torque to both wheels at all times regardless of speed
  - b) The two driving wheels to rotate at different speeds while turning



- c) The engine to disengage from the transmission
  - d) Reduction of engine vibration
58. Industrial robots are primarily deployed in manufacturing for:
- a) Purely manual repetitive tasks with no automation
  - b) Inspection tasks exclusively
  - c) Raw material storage exclusively
  - d) Automating repetitive or hazardous tasks with high precision
59. Electrical Discharge Machining (EDM) removes material primarily through:
- a) Controlled spark erosion between electrode and workpiece
  - b) Mechanical abrasion
  - c) Chemical dissolution
  - d) High-pressure water jet impact
60. A cantilever beam is a beam that is:
- a) Supported only at its mid-span
  - b) Continuously supported over more than two points
  - c) Fixed (built-in) at one end and completely free at the other end
  - d) Simply supported at both ends
61. The 'least count' of a measuring instrument refers to:
- a) The maximum value it can measure
  - b) The smallest value it can accurately measure/resolve
  - c) The average of repeated readings
  - d) The calibration certificate number
62. In Statistical Quality Control, a control chart is primarily used to:
- a) Monitor process variation over time and distinguish common-cause from special-cause variation
  - b) Fix the final selling price of the product
  - c) Assist in the geometric design of the product
  - d) Train newly recruited machine operators
63. A mechatronic system integrates which of the following disciplines?
- a) Mechanical and civil engineering only
  - b) Electrical and chemical engineering only
  - c) Software engineering only
  - d) Mechanical, electronics, control, and computer engineering
64. A material that is deformed and then returns to its original shape upon heating is known as a:
- a) Piezoelectric material

- b) Magnetostrictive material
- c) Shape memory alloy
- d) Thermoplastic elastomer

**65.** Deep drawing is a sheet-metal forming process primarily used to produce:

- a) Flat blanks only, with no further shape change
- b) Threaded fasteners such as bolts
- c) Gear teeth profiles
- d) Cup-shaped or box-shaped seamless hollow components

**66.** The starting system of an automobile typically uses which type of electric motor?

- a) Induction motor
- b) DC series motor
- c) Synchronous motor
- d) Stepper motor

**67.** Fatigue failure of a machine component typically occurs due to:

- a) A single application of a large static overload
- b) Creep at very high sustained temperature only
- c) Repeated or cyclic loading, often at stress levels well below the ultimate tensile strength
- d) Corrosion acting alone with no applied load

**68.** A composite material, in general, consists of:

- a) A single homogeneous phase throughout
- b) A reinforcing phase (fibres or particles) embedded within a continuous matrix phase
- c) Purely metallic constituents only
- d) Polymeric constituents only, with no reinforcement

**69.** Ultrasonic machining is best suited for machining:

- a) Soft, highly ductile metals such as pure aluminium
- b) Plastic components exclusively
- c) Hard and brittle materials such as glass, ceramics and carbides
- d) Timber and other wood products

**70.** In machine design, stress concentration is primarily caused by:

- a) Abrupt geometric changes such as holes, fillets, keyways or notches
- b) A uniform, unchanging cross-section along the member
- c) Perfectly homogeneous material properties
- d) The complete absence of any applied load

71. Cubic Boron Nitride (CBN), a cutting-tool material of extreme hardness (second only to diamond), is mainly employed for:
- a) Machining soft aluminium components at low speed
  - b) Machining very hard/hardened steels and precision finishing operations
  - c) Cutting only non-metallic materials such as wood
  - d) Cold forming of sheet metal
72. The Universal Testing Machine (UTM) is primarily used to determine:
- a) Tensile, compressive, and bending strength of materials
  - b) Hardness only
  - c) Fatigue life only
  - d) Thermal conductivity
73. As per Taylor's tool life equation  $VT^n = C$ , increasing the cutting velocity (V) generally results in:
- a) Increased tool life
  - b) Constant tool life regardless of velocity
  - c) No effect on tool life
  - d) Decreased tool life
74. The primary function of a flywheel in a reciprocating engine is to:
- a) Increase the mean speed of rotation
  - b) Control fluctuation of speed by storing and releasing kinetic energy
  - c) Regulate fuel supply directly
  - d) Balance the reciprocating masses completely
75. Which of the following is a non-ferrous engineering material?
- a) Grey cast iron
  - b) Mild steel
  - c) Aluminium alloy
  - d) Stainless steel
76. In manufacturing systems, the abbreviation CAPP stands for:
- a) Computer Aided Process Planning
  - b) Central Automated Production Programme
  - c) Computer Assisted Part Programming
  - d) Computer Aided Product Placement
77. The Economic Order Quantity (EOQ) model determines the order quantity that:
- a) Maximizes ordering cost
  - b) Minimizes the total of ordering cost and carrying (holding) cost

- c) Minimizes only the purchase price
- d) Maximizes inventory holding

**78.** Value Engineering is a systematic approach aimed at:

- a) Increasing the cost of a product without altering its function
- b) Deliberately reducing the quality of the product
- c) Increasing the overall weight of the product
- d) Achieving the required function of a product at the lowest overall cost, without sacrificing quality or reliability

**79.** Tribology, as applied to engineering materials, is the study of:

- a) Friction, wear and lubrication between interacting surfaces in relative motion
- b) Only the thermal conductivity of materials
- c) Only the electrical resistivity of materials
- d) Only the optical properties of materials

**80.** The Just-In-Time (JIT) production philosophy primarily aims to:

- a) Maximise buffer inventories held at every stage of production
- b) Produce and deliver items only as and when needed, thereby minimising inventory and waste
- c) Increase production batch sizes indefinitely
- d) Eliminate quality control checks from the process

**81.** The extrusion process is primarily used to manufacture:

- a) Long products having a uniform cross-section
- b) Thin sheet metal panels only
- c) Sand castings only
- d) Sintered powder compacts only

**82.** A 'process layout' (functional layout) in a manufacturing plant is one in which:

- a) Machines are arranged strictly in the sequence of operations required for a single prod
- b) Machines or facilities performing a similar function are grouped together in one area
- c) All machines are positioned without any logical grouping
- d) Only a single machine exists in the entire plant

**83.** The Second Law of Thermodynamics introduces the thermodynamic property known as:

- a) Enthalpy
- b) Specific heat
- c) Internal energy
- d) Entropy

84. Dry sliding wear between two mating surfaces is primarily influenced by:
- a) Surface roughness and material hardness
  - b) The colour of the mating surfaces
  - c) Magnetic properties of the material alone
  - d) The optical reflectivity of the surfaces
85. For an ideal gas, the specific heat at constant pressure ( $C_p$ ) is always:
- a) Less than the specific heat at constant volume ( $C_v$ )
  - b) Exactly equal to  $C_v$  for every gas
  - c) Greater than the specific heat at constant volume ( $C_v$ )
  - d) Completely independent of  $C_v$
86. Aggregate production planning primarily deals with determining production levels, workforce, and inventory over a:
- a) Single day
  - b) Medium-term planning horizon (typically 3–18 months)
  - c) Hourly shift schedule only
  - d) 10-year strategic horizon only
87. Break-even analysis is used to determine the point of production/sales at which:
- a) Total revenue exceeds only the total variable cost
  - b) Profit is at its absolute maximum
  - c) Fixed cost reduces to zero
  - d) Total revenue exactly equals total cost, i.e., the firm makes neither profit nor loss
88. Kanban, as a visual scheduling and inventory-control card system, is most closely associated with:
- a) Traditional MRP 'push' production systems
  - b) Classical Economic Order Quantity (EOQ) ordering alone
  - c) Just-In-Time (JIT) / Lean 'pull' manufacturing systems
  - d) Long-range demand forecasting models only
89. The Six Sigma methodology primarily aims to:
- a) Deliberately increase process variation for flexibility
  - b) Eliminate all standard operating procedures from a process
  - c) Increase the overall cycle time of a process
  - d) Reduce process variation and defects to a near-zero level (around 3.4 defects per million opportunities)

- 90.** The transportation problem in Operations Research deals with minimizing the cost of shipping goods from:
- a) A single source to a single destination
  - b) A warehouse to itself
  - c) Multiple sources to multiple destinations, subject to supply and demand constraints
  - d) Within a single manufacturing plant only
- 91.** Linear programming, as used in Operations Research, is a technique for:
- a) Making purely qualitative decisions
  - b) Optimising a linear objective function subject to linear constraints
  - c) Solving only non-linear optimisation problems
  - d) Analysing only probability distributions
- 92.** The continuity equation in fluid mechanics is derived from the principle of conservation of:
- a) Energy
  - b) Charge
  - c) Momentum
  - d) Mass
- 93.** According to Bernoulli's equation for an incompressible, ideal fluid, which quantity remains constant along a streamline?
- a) Total energy per unit weight
  - b) Density alone
  - c) Dynamic viscosity alone
  - d) Absolute temperature alone
- 94.** An ideal gas is one whose behaviour is completely described by the equation:
- a) Only Boyle's law
  - b) Only Charles' law
  - c)  $PV = mRT$
  - d) Only the Joule-Thomson relation
- 95.** A reaction turbine differs from an impulse turbine mainly because pressure drop occurs:
- a) Only in the nozzles
  - b) In both the fixed (guide) blades and the moving blades
  - c) Only after the fluid leaves the turbine
  - d) Only in the turbine casing
- 96.** An air-conditioning system is primarily designed to control which two properties of the conditioned air?
- a) Pressure and density

- b) Velocity and mass flow rate
- c) Viscosity and specific volume
- d) Temperature and relative humidity

**97.** The property of a fluid that represents its resistance to shear deformation is called:

- a) Density
- b) Viscosity
- c) Surface tension
- d) Compressibility

**98.** The state at which the liquid and vapour phases of a pure substance become indistinguishable is called the:

- a) Critical point
- b) Triple point
- c) Saturation point
- d) Dew point

**99.** Convective heat transfer that occurs due to an external agency such as a pump or fan is called:

- a) Free (natural) convection
- b) Forced convection
- c) Radiative convection
- d) Conductive convection

**100.** In a reciprocating air compressor, volumetric efficiency decreases mainly due to the presence of:

- a) Suction valve only
- b) Delivery pipe length
- c) Clearance volume
- d) Ambient humidity only

**=== END OF PAPER ===**

## **Answer Key of Research Methodology**

- 1. a**
- 2. c**
- 3. c**
- 4. b**
- 5. b**
- 6. d**
- 7. a**
- 8. a**
- 9. b**
- 10. d**
- 11. c**
- 12. b**
- 13. c**
- 14. b**
- 15. b**
- 16. a**
- 17. b**
- 18. a**
- 19. c**
- 20. b**
- 21. b**
- 22. d**
- 23. c**
- 24. d**
- 25. d**

- 26. a**
- 27. b**
- 28. b**
- 29. c**
- 30. d**
- 31. a**
- 32. c**
- 33. c**
- 34. b**
- 35. d**
- 36. d**
- 37. b**
- 38. d**
- 39. b**
- 40. c**
- 41. d**
- 42. b**
- 43. d**
- 44. b**
- 45. c**
- 46. b**
- 47. a**
- 48. d**
- 49. b**
- 50. c**

**Skill Department of Automotive Studies**  
**Ph.D Entrance Exam Answer Key**

| <b>Question No.</b> | <b>Answer</b> | <b>Question No.</b> | <b>Answer</b> | <b>Question No.</b> | <b>Answer</b> |
|---------------------|---------------|---------------------|---------------|---------------------|---------------|
| 51                  | C             | 71                  | B             | 91                  | B             |
| 52                  | B             | 72                  | A             | 92                  | D             |
| 53                  | A             | 73                  | D             | 93                  | A             |
| 54                  | D             | 74                  | B             | 94                  | C             |
| 55                  | A             | 75                  | C             | 95                  | B             |
| 56                  | D             | 76                  | A             | 96                  | D             |
| 57                  | B             | 77                  | B             | 97                  | B             |
| 58                  | D             | 78                  | D             | 98                  | A             |
| 59                  | A             | 79                  | A             | 99                  | B             |
| 60                  | C             | 80                  | B             | 100                 | C             |
| 61                  | B             | 81                  | A             |                     |               |
| 62                  | A             | 82                  | B             |                     |               |
| 63                  | D             | 83                  | D             |                     |               |
| 64                  | C             | 84                  | A             |                     |               |
| 65                  | D             | 85                  | C             |                     |               |
| 66                  | B             | 86                  | B             |                     |               |
| 67                  | C             | 87                  | D             |                     |               |
| 68                  | B             | 88                  | C             |                     |               |
| 69                  | C             | 89                  | D             |                     |               |
| 70                  | A             | 90                  | C             |                     |               |