```
Code No.

\section*{Entrance Examination for Admission to the P.G. Courses in the Teaching Departments, 2024}

\section*{CSS}

\section*{ACTUARIAL SCIENCE}

\section*{General Instructions}

1. The Question Paper is having 100 Objective Questions, each carrying one mark.
2. The answers are to be \((\checkmark)\) 'tick marked' only in the "Response Sheet" provided.
3. Negative marking : \(\mathbf{0 . 2 5}\) marks will be deducted for each wrong answer .

Time : 2 Hours
Max. Marks : 100

To be filled in by the Candidate
\begin{tabular}{||l|l|l|l|l|l|l|l|l|l|}
\hline Register & in Figures & & & & & & & & \\
\cline { 2 - 10 } Number & in words & & & & & & & & \\
\hline
\end{tabular}

Choose appropriate answer from the options in the questions.
(100 \(\times 1\) = 100 marks)
1. Which of the following statements is true regarding the convergence of a series?
A. If the series converges, then the terms of the series must tend to zero
B. If the terms of the series tend to zero, then the series must converge
C. If the series converges, then the terms of the series must be bounded
D. If the terms of the series are bounded, then the series must converge

\section*{DO}
2. If \(f(x)=x^{3}+2 x^{2}-3 x+1\), what is \(f^{\prime}(x)\) ?
A. \(3 x^{2}+4 x-3\)
B. \(3 x^{2}+4 x+3\)
C. \(3 x^{2}+2 x-3\)
D. \(3 x^{2}+2 x+1\)
3. What is the value of \(\lim _{x \rightarrow 0} \frac{\sin (x)}{x}\) ?
A. 0
B. 1
C. \(\infty\)
D. does not exist
4. If \(A\) is an \(n \times n\) matrix and \(A^{2}=I\), where \(l\) is the identity matrix, what can be said about \(A\) ?
A. \(A\) is not invertible
B. \(A\) is symmetric
C. \(A\) is orthogonal
D. \(A\) is invertible
5. What is the derivative of \(\ln (x)\) with respect to \(x\) ?
A. \(\frac{1}{x^{2}}\)
B. \(\frac{1}{x}\)
C. \(x\)
D. \(\frac{1}{\ln (x)}\)
6. Which of the following is the Maclaurin series expansion for \(\sin (x)\) ?
A. \(x-\frac{x^{3}}{3!}+\frac{x^{5}}{5!}-\frac{x^{7}}{7!}+\ldots\)
B. \(1-x+\frac{x^{2}}{2!}-\frac{x^{3}}{3!}+\ldots\)
C. \(\frac{x}{1!}-\frac{x^{2}}{2!}+\frac{x^{3}}{3!}-\frac{x^{4}}{4!}+\ldots\)
D. \(1+x+\frac{x^{2}}{2!}+\frac{x^{3}}{3!}+\ldots\)
7. What is the volume of the solid generated by revolving the region bounded by \(y=x^{2}\) and \(y=2 x\) about the \(y\)-axis?
A. \(\pi\)
B. \(4 \pi\)
C. \(8 \pi\)
D. \(16 \pi\)
8. If \(f(x)=e^{x}\), what is \(f^{\prime \prime}(x)\) ?
A. \(e^{x}\)
B. \(-e^{x}\)
C. \(e^{x}+1\)
D. \(e^{x}-1\)
9. Which of the following integrals represents the area under the curve \(y=\sin (x)\) from \(x=0\) to \(x=\pi\) ?
A. \(\int_{0}^{\pi} \sin (x) d x\)
B. \(\int_{0}^{\pi} \cos (x) d x\)
C. \(\int_{0}^{\pi}-\sin (x) d x\)
D. \(\int_{0}^{\pi}-\cos (x) d x\)
10. What is the value of \(\lim _{x \rightarrow \infty} \frac{e^{x}}{x}\) ?
A. 0
B. 1
C. \(\infty\)
D. does not exist
11. What is the solution to the differential equation \(\frac{d y}{d x}=3 x^{2}\) with initial condition \(y(0)=2\) ?
A. \(y=x^{3}+2\)
B. \(y=x^{3}+3\)
C. \(y=x^{3}+2 x+2\)
D. \(y=x^{3}+3 x+2\)
12. Which of the following is the Taylor series expansion of \(e^{x}\) about \(x=0\) ?
A. \(1+x+\frac{x^{2}}{2!}+\frac{x^{3}}{3!}+\ldots\)
B. \(1-x+\frac{x^{2}}{2!}-\frac{x^{3}}{3!}+\ldots\)
C. \(x-\frac{x^{3}}{3!}+\frac{x^{5}}{5!}-\frac{x^{7}}{7!}+\ldots\)
D. \(\frac{x}{1!}-\frac{x^{2}}{2!}+\frac{x^{3}}{3!}-\frac{x^{4}}{4!}+\ldots\)
13. What is the area enclosed by the curve \(y=\sqrt{x}\), the \(x\)-axis, and the lines \(x=1\) and \(x=4\) ?
A. \(\frac{9}{2}\)
B. \(\frac{13}{3}\)
C. \(\frac{5}{2}\)
D. \(\frac{7}{3}\)
14. If \(f(x)=\frac{1}{x}\), what is \(f^{\prime \prime}(x)\) ?
A. \(-\frac{2}{x^{3}}\)
B. \(\frac{2}{x^{3}}\)
C. \(-\frac{1}{x^{2}}\)
D. \(\frac{1}{x^{2}}\)
15. Which of the following statements is true about the convergence of improper integrals?
A. If an improper integral diverges, then the integral of unbounded
B. If an improper integral converges, then the function must be bounded on the interval of integration
C. If an improper integral diverges, then the function must be unbounded on the interval of integration
D. If an improper integral converges, then the function must be continuous on the interval of integration
16. What is the limit of \(\frac{\cos (x)-1}{x}\) as \(x\) approaches 0 ?
A. 0
B. \(\infty\)
C. \(-\infty\)
D. does not exist
17. Which of the following matrices is singular?
A. \(\quad\left[\begin{array}{ll}1 & 2 \\ 3 & 4\end{array}\right]\)
B. \(\left[\begin{array}{cc}1 & 0 \\ 0 & -1\end{array}\right]\)
C. \(\left[\begin{array}{ll}1 & 1 \\ 0 & 0\end{array}\right]\)
D. \(\left[\begin{array}{ll}0 & 1 \\ 1 & 0\end{array}\right]\)
18. What is the integral of \(\frac{1}{1+x^{2}}\) with respect to \(x\) ?
A. \(\tan ^{-1}(x)+C\)
B. \(\frac{1}{x+C}\)
C. \(\frac{x}{1+x^{2}}+C\)
D. \(\ln |x+1|+C\)
19. What is the sum of the series \(\sum_{n=1}^{\infty} \frac{1}{n^{2}}\) ?
A. \(\frac{\pi^{2}}{6}\)
B. \(\frac{\pi}{6}\)
C. \(\frac{\pi^{2}}{4}\)
D. \(\frac{\pi}{4}\)
20. What is the eigenvalue of the matrix \(\left[\begin{array}{ll}2 & 1 \\ 1 & 2\end{array}\right]\) ?
A. 1
B. 2
C. 3
D. 4
21. What is the solution to the differential equation \(\frac{d^{2} y}{d x^{2}}+4 y=0\) ?
A. \(y=\sin (2 x)\)
B. \(y=\cos (2 x)\)
C. \(y=e^{2 x}\)
D. \(y=e^{-2 x}\)
22. What is the value of \(\lim _{x \rightarrow \infty}\left(1+\frac{1}{x}\right)^{x}\) ?
A. \(e\)
B. \(\pi\)
C. 2
D. 0
23. What is the derivative of \(\tan (x)\) with respect to \(x\) ?
A. \(\cos ^{2}(x)\)
B. \(\sin ^{2}(x)\)
C. \(\sec ^{2}(x)\)
D. \(\csc ^{2}(x)\)
24. Which of the following series is convergent?
A. \(\sum_{n=1}^{\infty} \frac{1}{n^{2}}\)
B. \(\sum_{n=1}^{\infty} \frac{1}{n}\)
C. \(\sum_{n=1}^{\infty} \frac{(-1)^{n}}{n}\)
D. \(\sum_{n=1}^{\infty} \frac{n^{2}}{n^{3}+1}\)
25. What is the value of \(\int_{0}^{\infty} e^{-x^{2}} d x\) ?
A. \(\sqrt{\pi}\)
B. \(\frac{\sqrt{\pi}}{2}\)
C. \(\frac{\sqrt{\pi}}{4}\)
D. \(\frac{\sqrt{\pi}}{8}\)
26. Which measure of central tendency is affected most by outliers?
A. Mean
B. Median
C. Mode
D. Standard deviation
27. In a normal distribution, approximately what percentage of data falls within one standard deviation of the mean?
A. \(34 \%\)
B. \(50 \%\)
C. \(68 \%\)
D. \(95 \%\)
28. What does the \(p\)-value represent in hypothesis testing?
A. Probability of committing a Type I error
B. Probability of committing a Type II error
C. Probability of observing the given data, assuming the null hypothesis is true
D. Probability of rejecting the null hypothesis when it is true
29. Which of the following correlation coefficients indicates the strongest linear relationship between two variables?
A. 0.25
B. -0.70
C. 0
D. 0.90
30. A Random variable that can take on any value within a specified range with equal probability is called
A. Discrete
B. Continuous
C. Binomial
D. Poisson
31. In a boxplot, which part of the box represents the interquartile range?
A. Middle 50\%
B. Top whisker
C. Bottom whisker
D. Median
32. Which statistical test is used to compare the means of two independent groups?
A. \(t\)-test
B. Chi-square test
C. ANOVA
D. Paired \(t\)-test
33. Which of the following probability distributions is used to model the number of successes in a fixed number of independent Bernoulli trials?
A. Binomial
B. Normal
C. Exponential
D. Poisson
34. What is the formula for the standard error of the mean?
A. \(\frac{\sigma}{\sqrt{n}}\)
B. \(\frac{s}{\sqrt{b}}\)
C. \(\frac{\sigma}{n}\)
D. \(\frac{s}{n}\)
35. What does the coefficient of determination \(\left(R^{2}\right)\) measure in regression analysis?
A. The proportion of the variance in the dependent variable that is predictable from the independent variable(s)
B. The correlation between the independent and dependent variables
C. The accuracy of the regression model
D. The slope of the regression line
36. What is the formula for calculating the variance of a sample?
A. \(\frac{\sum_{i=1}^{n}\left(x_{i}-\bar{x}\right)^{2}}{n}\)
B. \(\frac{\sum_{i=1}^{n}\left(x_{i}-\bar{x}\right)^{2}}{n-1}\)
C. \(\frac{\sum_{i=1}^{n}\left(x_{i}-\mu\right)^{2}}{n}\)
D. \(\frac{\sum_{i=1}^{n}\left(x_{i}-\mu\right)^{2}}{n-1}\)
37. What does the term "degrees of freedom" represent in statistics?
A. The number of observations in the dataset
B. The number of independent variables in a regression model
C. The number of parameters estimated minus the number of constraints in the model
D. The number of sample points used to estimate a population parameter
38. Which of the following is a measure of dispersion?
A. Median
B. Mode
C. Variance
D. Mean
39. What is the standard deviation of a dataset?
A. The average deviation from the mean
B. The square root of the variance
C. The range of the dataset
D. The maximum value in the dataset
40. What does a small \(p\)-value indicate in hypothesis testing?
A. Strong evidence against the null hypothesis
B. Weak evidence against the null hypothesis
C. Support for the null hypothesis
D. Inconclusive evidence regarding the null hypothesis
41. What is the purpose of a confidence interval in statistics?
A. To estimate the range of population parameters with a certain level of confidence
B. To determine the sample size needed for a hypothesis test
C. To determine the critical value for a hypothesis test
D. To summarize the data using a single value
42. Which of the following is NOT a type of probability sampling method?
A. Simple random sampling
B. Systematic sampling
C. Convenience sampling
D. Stratified sampling
43. What is the formula for the coefficient of variation?
C. \(\stackrel{\text { Variance }}{\text { Mean }} \times 100 \%\)
Standard deviation
A. \(\times 100 \%\)
Mean
B. \(\overline{\text { Standard deviation }} \times 100 \%\)
Standard deviation
D. \(\frac{\text { Mean }}{\text { Variance }} \times 100 \%\)
44. Which statistical test is used to determine if there is a significant association between two categorical variables?
A. Chi-square test
B. \(t\)-test
C. ANOVA
D. Regression analysis
45. In hypothesis testing, what is the Type II error?
A. Failing to reject the null hypothesis when it is false
B. Rejecting the null hypothesis when it is true
C. Accepting the null hypothesis when it is false
D. Accepting the null hypothesis when it is true
46. What does the term "skewness" refer to in statistics?
A. The spread of the data around the mean
B. The symmetry of the distribution
C. The shape of the tails of the distribution
D. The presence of outliers in the data
47. What is the range of possible values for the correlation coefficient?
A. \(-1 \leq \rho \leq 1\)
B. \(\quad 0 \leq \rho \leq 1\)
C. \(-\infty \leq \rho \leq \infty\)
D. \(0 \leq \rho \leq \infty\)
48. Which of the following statements about the central limit theorem (CLT) is true?
A. It states that the sample mean approaches a normal distribution as the sample size increases, regardless of the shape of the population distribution
B. It only applies to populations with a normal distribution
C. It guarantees that the sample mean will always be normally distributed
D. It is not applicable when the sample size is small
49. What is the purpose of a hypothesis test in statistics?
A. To make inferences about the population based on sample data
B. To summarize the data using descriptive statistics
C. To estimate population parameters with a certain level of confidence
D. To visualize the distribution of the data
50. Which of the following statements about the coefficient of determination \(\left(R^{2}\right)\) is true?
A. It measures the proportion of the variance in the independent variable explained by the dependent variable
B. It is always between 0 and 1
C. A higher \(R^{2}\) value indicates a stronger linear relationship between the variables
D. It is not affected by outliers in the data
51. What is the purpose of actuarial science?
A. To analyze financial risks using mathematical and statistical methods
B. To predict future stock market trends
C. To provide investment advice to clients
D. To develop new insurance products
52. Which of the following is NOT a common actuarial exam?
A. Exam \(P\)
B. Exam FM
C. Exam C
D. Exam A
53. What is the present value of a payment of \(\$ 1,000\) in 5 years at an annual interest rate of \(4 \%\) ?
A. \(\$ 820.08\)
B. \(\quad \$ 943.40\)
C. \(\$ 1,000.00\)
D. \(\$ 1,215.51\)
54. In life insurance, what does the term "mortality rate" refer to?
A. The probability of survival to a given age
B. The rate at which policyholders pay their premiums
C. The rate at which policyholders make claims
D. The rate at which policyholders cancel their policies
55. What is the formula for calculating the net present value (NPV) of a series of cash flows?
A. \(\sum_{t=1}^{n} \frac{C F_{t}}{(1+r)^{t}}\)
B. \(\sum_{t=1}^{n} C F_{t} \times(1+r)^{t}\)
C. \(\sum_{t=1}^{n} \frac{C F_{t}}{(1+r)^{n}}\)
D. \(\sum_{t=1}^{n} C F_{t} \times(1+r)^{n}\)
56. What is the primary purpose of reserving in insurance?
A. To ensure that there are enough funds to cover future claims
B. To maximize profits for the insurance company
C. To provide refunds to policyholders
D. To reduce the cost of premiums for policyholders
57. A company sells life insurance policies to individuals. The probability that a 40 -year-old male will survive to age 65 is 0.85 . What is the probability that out of 10 randomly selected 40 -year-old males, exactly 8 will survive to age 65 ?
A. \(\binom{10}{8} \times(0.85)^{8} \times(0.15)^{2}\)
B. \(\binom{10}{8} \times(0.85)^{8} \times(0.15)^{8}\)
C. \(\binom{10}{8} \times(0.85)^{8} \times(0.15)^{10}\)
D. \(\binom{10}{8} \times(0.85)^{10} \times(0.15)^{8}\)
58. What is the difference between reinsurance and retrocession?
A. Reinsurance involves transferring part of the risk to another insurer, while retrocession involves transferring part of the risk back to the original insurer
B. Reinsurance involves insuring against losses from catastrophic events, while retrocession involves insuring against individual policyholder claims
C. Reinsurance is purchased by the policyholder, while retrocession is purchased by the insurer
D. Reinsurance is used in property insurance, while retrocession is used in life insurance
59. Which of the following is a characteristic of an annuity?
A. A series of equal periodic payments
B. A lump sum payment
C. Payments that vary based on investment performance
D. Payments that only occur at the end of the annuity period
60. What is the formula for calculating the future value of an annuity?
A. \(\quad F V=P \times\left(\frac{(1+r)^{n}-1}{r}\right)\)
B. \(F V=P \times(1+r)^{n}\)
C. \(F V=P \times\left(\frac{(1+r)^{n}}{r}\right)\)
D. \(F V=P \times\left(\frac{r}{(1+r)^{n}-1}\right)\)
61. What type of insurance provides coverage for crops and livestock?
A. Motor insurance
B. Health insurance
C. Agriculture insurance
D. Life insurance
62. Which of the following perils is typically covered by agriculture insurance?
A. Vehicle theft
B. Crop failure due to drought
C. Medical expenses due to illness
D. Legal liabilities
63. What is the purpose of motor insurance?
A. To provide coverage for damage to agricultural equipment
B. To provide coverage for vehicles against accidents and theft
C. To provide coverage for medical expenses related to motor accidents
D. To provide coverage for loss of income due to disability
64. Which of the following is NOT typically covered under motor insurance?
A. Third-party liability
B. Theft of the insured vehicle
C. Personal accident cover for the driver
D. Loss of crops due to natural disasters
65. What does TP in "TP insurance" stand for in the context of motor insurance?
A. Third-party
B. Total premium
C. Theft protection
D. Temporary policy
66. In agriculture insurance, what is a deductible?
A. The amount the insured pays out of pocket before the insurance coverage kicks in
B. The total coverage provided by the insurance policy
C. The premium paid by the insured to the insurer
D. The duration of the insurance policy
67. Which of the following is an example of a motor insurance add-on cover?
A. Personal accident cover
B. Third-party liability cover
C. Basic own damage cover
D. Critical illness cover
68. What is the maximum tenure for a motor insurance policy in India?
A. 1 year
B. 3 years
C. 5 years
D. 10 years
69. Which organization administers the Pradhan Mantri Fiscal Bima Yojana (PMFBY) in India?
A. Insurance Regulatory and Development Authority of India (IRDAI)
B. National Agricultural Insurance Scheme (NAIS)
C. Agriculture Insurance Company of India Limited (AIC)
D. Ministry of Agriculture and Farmers Welfare
70. What is the purpose of the National Crop Insurance Programme (NCIP) in India?
A. To provide financial assistance to farmers for crop production
B. To provide insurance coverage against crop loss due to natural calamities
C. To provide subsidies for agricultural machinery and equipment
D. To promote organic farming practices
71. What is the primary function of an actuary in an insurance company?
A. To calculate premiums for insurance policies
B. To assess and manage risks associated with insurance policies
C. To handle customer service inquiries
D. To market and sell insurance products
72. What is adverse selection in insurance?
A. The tendency for individuals with lower risk to seek out insurance coverage
B. The tendency for individuals with higher risk to seek out insurance coverage
C. The process of underwriting insurance policies
D. The process of setting insurance premiums
73. Which of the following statements about risk management in insurance is true?
A. Risk management aims to eliminate all risks associated with insurance policies
B. Risk management involves identifying, assessing and mitigating risks to minimize their impact
C. Risk management is only relevant for life insurance, not other types of insurance
D. Risk management is the responsibility of policyholders, not insurance companies
74. What. is the purpose of actuarial models in insurance?
A. To predict future stock market trends
B. To calculate premiums for insurance policies
C. To assess and manage risks associated with insurance policies
D. To handle customer service inquiries
75. Which of the following is NOT a factor typically considered when setting insurance premiums?
A. Age and gender of the policyholder
B. Occupation and income level of the policyholder
C. Marital status and number of dependents
D. Political affiliation of the policyholder
76. Which of the following sectors in the Indian economy is most affected by the Monsoon?
A. Agriculture
B. Manufacturing
C. Services
D. Infrastructure
77. What is the main function of the Securities and Exchange Board of India (SEBI)?
A. Regulating the stock markets
B. Managing foreign exchange reserves
C. Formulating monetary policy
D. Allocating funds for infrastructure projects
78. Which of the following Indian states is known for its high per capita income and IT industry?
A. Maharashtra
B. Tamil Nadu
C. Karnataka
D. Bihar
79. What is the purpose of the Goods and Services Tax (GST) in India?
A. To simplify the taxation system by replacing multiple indirect taxes
B. To increase the overall tax burden on consumers
C. To discourage foreign investment in India
D. To reduce the government's revenue collection
80. Which of the following organizations publishes the Consumer Price Index (CPI) in India?
A. Central Statistical Office (CSO)
B. Reserve Bank of India (RBI)
C. Ministry of Finance
D. Planning Commission
81. What is the term used to describe the difference between a country's total savings and total investment?
A. Current account deficit
B. Fiscal deficit
C. Trade deficit
D. Capital account deficit
82. Which of the following is a major component of India's foreign exchange reserves?
A. Gold
B. Oil
C. Wheat
D. Automobiles
83. What is the main objective of the Make in India initiative launched by the Government of India?
A. To promote domestic manufacturing and attract foreign investment
B. To increase agricultural productivity
C. To reduce unemployment in the services sector
D. To improve infrastructure development in rural areas
84. What is the term used to describe a situation where the rate of inflation exceeds the rate of economic growth?
A. Stagflation
B. Hyperinflation
C. Deflation
D. Disinflation
85. Which of the following sectors in the Indian economy has been traditionally characterized by a high level of informality?
A. Agriculture
B. Manufacturing
C. Services
D. Information Technology
86. Who is known as the "Father of the Indian Constitution"?
A. Mahatma Gandhi
B. Jawaharlal Nehru
C. B.R. Ambedkar
D. Sardar Vallabhbhai Patel
87. Which part of the Indian Constitution deals with fundamental Rights?
A. Part II
B. Part III
C. Part IV
D. Part V
88. What is the minimum age requirement to become the President of India?
A. 30 years
B. 35 years
C. 40 years
D. 45 years
89. Which article of the Indian Constitution deals with the appointment and removal of the Governor of a State?
A. Article 154
B. Article 155
C. Article 156
D. Article 157
90. What is the maximum strength of the Lok Sabha as per the Constitution of India?
A. 532
B. 545
C. 552
D. 562
91. Who has the power to dissolve the Lok Sabha?
A. The President of India
B. The Prime Minister of India
C. The Speaker of Lok Sabha
D. The Chief Justice of India
92. Which schedule of the Indian Constitution contains the list of recognized languages in India?
A. Ninth Schedule
B. Tenth Schedule
C. Eleventh Schedule
D. Eighth Schedule
93. Which amendment of the Indian Constitution lowered the voting age from 21 to 18 years?
A. \(42^{\text {nd }}\) Amendment
B. \(44^{\text {th }}\) Amendment
C. \(61^{\text {st }}\) Amendment
D. \(73^{\text {rd }}\) Amendment
94. Who is the final interpreter of the Indian Constitution?
A. President
B. Prime Minister
C. Parliament
D. Supreme Court
95. Which article of the Indian Constitution deals with the appointment and tenure of the Prime Minister?
A. Article 75
B. Article 76
C. Article 78
D. Article 80
96. Which regulatory body oversees the insurance sector in India?
A. SEBI
B. RBI
C. IRDAI
D. FSDC
97. What does IRDAI stand for?
A. Insurance Regulatory and Development Authority of India
B. Indian Risk and Development Association of India
C. Indian Regulatory and Development Agency of Insurance
D. Insurance Research and Development Authority of India
98. Which of the following is NOT a type of life insurance policy in India?
A. Term insurance
B. Whole life insurance
C. Group insurance
D. Comprehensive insurance
99. In insurance terminology, what does "premium" refer to?
A. The amount paid by the insured to the insurer for coverage
B. The total coverage provided by the insurance policy
C. The duration of the insurance policy
D. The deductible amount in case of a claim
100. What is the purpose of a nominee in an insurance policy?
A. To receive the benefits of the policy in case of the insured's death
B. To pay the premium on behalf of the insured
C. To assess the risk associated with the insured
D. To regulate the insurance sector in India

\section*{ANSWER SHEET}
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline & A & B & C & D & E & & & & & & & E & & & A & B & C & & E & 76 & & A B & C & D & E \\
\hline 2 & A & B & C & D & E & 27 & A & B & B & C & D & E & 52 & & A & B & C & D & E & 77 & A & A B & C & D & E \\
\hline 3 & A & B & C & D & E & 28 & A & B & B C & C & D & E & 53 & & A & B & C D & D & E & 78 & A & A B & C & D & E \\
\hline 4 & A & B & C & D & E & 9 & A & A & B C & C & D & E & 54 & & A & B & C & D & E & 79 & A & A B & C & D & E \\
\hline 5 & A & B & C & D & E & 0 & A & & B & C & D & E & 55 & & A & B & C & D & E & 80 & A & A B & C & D & E \\
\hline 6 & A & B & C & D & E & 1 & A & B & B & C & D & E & 56 & & A & B & C & D & E & 81 & A & A B & C & D & E \\
\hline 7 & A & B & C & D & E & 2 & A & A & B & C D & D & E & 57 & & A & B & C & D & E & 82 & A & A B & C & D & E \\
\hline 8 & A & B & C & D & E & 3 & A & B & B & C D & D & E & 58 & & A & B & C & D & E & 83 & A & A B & C & D & E \\
\hline \[
9
\] & A & B & C & D & E & 4 & A & B & B C & C & D & E & & & A & B & C & D & E & & & A B & C & D & E \\
\hline & A & B & C & D & E & & A & & B & C & D & E & & & A & B & C & D & E & 85 & A & A B & C & D & E \\
\hline & A & B & C & D & E & 6 & A & & B & C & D & E & & & A & B & C & D & E & 86 & A & A B & C & D & E \\
\hline \[
12[
\] & A & B & C & D & E & 37 & A & A & B & C D & D & E & 62 & & A & B & C & D & E & 87 & A & A B & C & D & E \\
\hline 13 & A & B & C & D & E & - & A & B & B C & D & D & E & 63 & & A \({ }^{\text {d }}\) & B & C & D & E & 88 & A & A \({ }^{\text {a }}\) & C & D & E \\
\hline & A & B & C & D & E & A & A & B & 3 C & & D & E & 64 & & A \({ }^{\text {B }}\) & B & C D & D & E & 89 & & A \({ }^{\text {B }}\) & C & D & E \\
\hline & A & B & C & D & E & & A & B & B C & D & D & E & & & A & B & C D & D & E & 90 & & A \({ }^{\text {a }}\) & C & D & E \\
\hline & A & B & C & D & E & & A & A & B C & C & D & E & & & A & B & C D & D & E & 91 & A & A B & C & D & E \\
\hline & A & B & C & D & E & & A & B & B \({ }^{\text {c }}\) & D & D & E & & & A & B & C & D & E & 92 & & A \({ }^{\text {A }}\) & C & D & E \\
\hline & A & B & C & D & E & & A & & 3 C & C & D & E & & & A \({ }^{\text {B }}\) & B & C D & D & E & 93 & & A B & C & D & E \\
\hline & A & B & C & D & E & & A & & B C & C & D & E & & & A & B & C D & D & E & 94 & & A B & C & D & E \\
\hline & A & B & C & D & E & & A & B & B C & D & D & E & & & A B & B & D & D & E & 95 & & A B & C & D & E \\
\hline & A & B & C & D & E & & A & & B C & D & D & E & & & A \({ }^{\text {B }}\) & B & C D & D & E & 96 & & A B & C & D & E \\
\hline & A & B & C & D & E & & A & & \(B\) & D & D & E & & & A \({ }^{\text {B }}\) & B & C D & D & E & 97 & & A B & C & D & E \\
\hline & A & B & C & D & E & & A & B & B C & C & D & E & & & A B & B & C D & D & E & 98 & & A B & C & D & E \\
\hline & A & B & C & D & E & & A & B & B C & C \({ }^{\text {D }}\) & D & E & & & A \({ }^{\text {B }}\) & B & C D & D & E & 99 & & A B & C & D & E \\
\hline & A & B & C & D & E & & & & B C & & D & E & & & & & C D & D & E & & & & C & D & E \\
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