ENTRANCE EXAMINATION FOR ADMISSION, MAY 2010.

Ph.D. (MANAGEMENT)

COURSE CODE : 117

Register Number :

Signature of the Invigilator
(*with date*)

COURSE CODE : 117

Time : 2 Hours   Max : 360 Marks

Instructions to Candidates :

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.

2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.

3. Read each question carefully and shade the relevant answer (A) or (B) or (C) or (D) in the relevant box of the ANSWER SHEET using HB pencil.

4. Avoid blind guessing. A wrong answer will fetch you –1 mark and the correct answer will fetch 4 marks.

5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.

6. Do not open the question paper until the start signal is given.

7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.

8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.

9. Use of Calculators, Tables, etc. are prohibited.

1. The absence of a sense of outrage and grief at national tragedy is an - of moral responsibility.
   (A) intervention
   (B) energising
   (C) abdication
   (D) administration

2. One of the essential characteristic of research is
   (A) Replicability
   (B) Generalizability
   (C) Usability
   (D) Objectivity

3. Fixed cost per unit
   (A) fluctuates with the volume of productivity
   (B) varies in sympathy with the volume of sales
   (C) remains fixed
   (D) none of the above

4. Long Term Solvency is indicated by
   (A) Current Ratio
   (B) Debt Equity Ratio
   (C) Net Profit Ratio
   (D) Liquidity Ratio

5. Overhead refers to
   (A) Direct Expenses
   (B) Capital Expenses
   (C) Indirect Expenses
   (D) None of the above

6. Working capital management comes under
   (A) Financing Decision
   (B) Liquidity Decision
   (C) Investment Decision
   (D) Dividend Decision

7. Which of the following is a staff function?
   (A) Selling
   (B) Accounting
   (C) Production
   (D) Project Management

8. For project management, the preferred organization structure is
   (A) Functional structure
   (B) Matrix structure
   (C) Divisional structure
   (D) SBU structure

9. Which type of leadership is likely to provide better decisions?
   (A) Autocratic leadership
   (B) Democratic leadership
   (C) Delegative leadership
   (D) Dictatorial leadership

10. Which one of the following is a method of depreciation?
    (A) Moving average method
    (B) Weighted average method
    (C) Cyclical method
    (D) Diminishing balance method

11. Return on assets (ROA) is

    (A) Gross Income / Fixed Assets   (B) Net income / Fixed Assets

    (C) Gross income / Total Assets   (D) Net Income / Total Assets

12. The term current asset does not include

    (A) Payment in Advance   (B) Bills Receivable

    (C) Land and building   (D) Stock

13. Break even analysis assume that

    (A) Average unit cost increases as production increases

    (B) Fixed cost increases as the production increases

    (C) Selling price is constant

    (D) Total revenue is constant

14. The area under standard normal curve within + or − 2 sigma limit is

    (A) approximately 90%   (B) approximately 94%

    (C) approximately 98%   (D) approximately 99%

15. Price elasticity of demand

    (A) is always positive   (B) is always negative

    (C) is always an integer   (D) is always a fraction

16. In a "Perfect Competition"

    (A) Products are differentiated

    (B) Buyers are knowledgeable about the product

    (C) Price is controlled by the market leader

    (D) Entry to new sellers are restricted

17. If, Annual consumption is 4,000 kg; cost of placing one order is Rs. 5; Cost Per Unit is Rs. 2 per kg; storage and carrying cost is 8% on average inventory, the EOQ will be

    (A) 400 units   (B) 500 units

    (C) 200 units   (D) 100 units

18. In normal distribution, the greek symbol "Mu" stands for

    (A) Mean   (B) Median

    (C) Mode   (D) Skewness

19. Solve the following game.

Player B

		1	2
Player A	1	3	4
	2	4	1

The value of the game is _____.

(A) 2.25   (B) 3.25

(C) 4.25   (D) None of the above

20. The normal time and crash time of an activity are 20 weeks and 15 weeks. The corresponding costs are Rs. 2,000 and Rs. 3,000, respectively. The slope of that activity is _____.

(A) Rs. 50   (B) Rs. 100   (C) Rs. 150   (D) Rs. 200

21. Positive income effect is greater than negative substitution effect in case of

(A) Normal goods   (B) Inferior goods

(C) Luxury goods   (D) Giffen goods

22. Willingness to pay – actual payment is equal to

(A) Suppliers surplus   (B) Consumers surplus

(C) Producers surplus   (D) None

23. 'I am OK – You are OK' goes with

(A) Eric Berne   (B) Freud

(C) Stephen Covey   (D) None of the above

24. E-Business is promising because

(A) It eliminates geographical limitations

(B) It eliminates time restrictions

(C) It cuts costs

(D) All of the above

25. The business of eBay may be called as
    (A) B2C e-commerce   (B) B2B e-commerce
    (C) C2C e-commerce   (D) C2B e-commerce

Fill up the blanks with the pair of words given under (A) or (B) or (C) or (D).

26. As man reached the stars, a booming population threatened to destroy the
    ——————— of life on his home planet and even its chances for ———————
    (A) Quality - survival   (B) Basis - growth
    (C) Existence - upliftment   (D) Chances - improvement

27. The rate of violent crime in this state is up 30 percent from last year. The fault lies
    entirely in our court system: Recently our judges' sentences have been so lenient that
    criminals can now do almost anything without fear of a long prison term.

    The argument above would be weakened if it were true that

    (A) 85 percent of the other states in the nation have lower crime rates than does
        this state.

    (B) white collar crime in this state has also increased by over 25 percent in the last
        year.

    (C) 35 percent of the police in this state have been laid off in the last year due to
        budget cuts.

    (D) polls show that 65 percent of the population in this state oppose capital
        punishment.

28. Acme brand aspirin claims to be the best headache relief available on the market
    today. To prove this claim, Acme called 10 people and asked them their thoughts on
    headache relief products. All 10 of them stated that they unequivocally use Acme
    brand aspirin on a regular basis and that they believe it to be the best headache relief
    available on the market today.

    Which of the following would most weaken this argument?

    (A) Acme brand aspirin is highly addictive.

    (B) The 10 people called were married to the company's top 10 executives, and they
        were coached on what to say.

    (C) Most people choose to suffer silently through their headaches and take no
        medicines whatsoever.

    (D) This survey was conducted by an independent company.

29. Stronger patent laws are needed to protect inventions from being pirated. With that protection, manufacturers would be encouraged to invest in the development of new products and technologies. Such investment frequently results in an increase in a manufacturer's productivity.

Which of the following conclusions can most properly be drawn from the information above?

(A) Stronger patent laws tend to benefit financial institutions as well as manufacturers.

(B) Increased productivity in manufacturing is likely to be accompanied by the creation of more manufacturing jobs.

(C) Manufacturers will decrease investment in the development of new products and technologies unless there are stronger patent laws.

(D) Stronger patent laws would stimulate improvements in productivity for many manufacturers.

30. There are far fewer children available for adoption than there are people who want to adopt. Two million couples are currently waiting to adopt, but in 1982, the last year for which figures exist, there were only some 50,000 adoptions.

Which of the following statements, if true, most strengthens the author's claim that there are far fewer children available for adoption than there are people who want to adopt?

(A) The number of couples waiting to adopt has increased significantly in the last decade.

(B) The number of adoptions in the current year is greater than the number of adoptions in any preceding year.

(C) The number of adoptions in a year is approximately equal to the number of children available for adoption in that period.

(D) People who seek to adopt children often go through a long process of interviews and investigation by adoption agencies.

31. The city's public transportation system should be removed from the jurisdiction of the municipal government, which finds it politically impossible either to raise fares or to institute cost-saving reductions in service. If public transportation were handled by a private firm, profits would be vigorously pursued, thereby eliminating the necessity for covering operating costs with government funds.

The statements above best support the conclusion that

(A) the private firms that would handle public transportation would have experience in the transportation industry.

(B) political considerations would not prevent private firms from ensuring that revenues cover operating costs.

(C) private firms would receive government funding if it were needed to cover operating costs.

(D) the public would approve the cost-cutting actions taken by the private firm.

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32. Mr. Lawson: We should adopt a national family policy that includes legislation requiring employers to provide paid parental leave and establishing government-sponsored day care. Such laws would decrease the stress levels of employees who have responsibility for small children. Thus, such laws would lead to happier, better-adjusted families.

Which of the following, if true, would most strengthen the conclusion above?

(A) An employee's high stress level can be a cause of unhappiness and poor adjustment for his or her family.

(B) People who have responsibility for small children and who work outside the home have higher stress levels than those who do not.

(C) The goal of a national family policy is to lower the stress levels of parents.

(D) Any national family policy that is adopted would include legislation requiring employers to provide paid parental leave and establishing government-sponsored day care.

33. Banning cigarette advertisements in the mass media will not reduce the number of young people who smoke. They know that cigarettes exist and they know how to get them. They do not need the advertisements to supply that information.

The above argument would be most weakened if which of the following were true?

(A) Seeing or hearing an advertisement for a product tends to increase people's desire for that product.

(B) Banning cigarette advertisements in the mass media will cause an increase in advertisements in places where cigarettes are sold.

(C) Advertisements in the mass media have been an exceedingly large part of the expenditures of the tobacco companies.

(D) Those who oppose cigarette use have advertised against it in the mass media ever since cigarettes were found to be harmful.

34. Insurance Company X is considering issuing a new policy to cover services required by elderly people who suffer from diseases that afflict the elderly. Premiums for the policy must be low enough to attract customers. Therefore, Company X is concerned that the income from the policies would not be sufficient to pay for the claims that would be made.

Which of the following strategies would be most likely to minimize Company X's losses on the policies?

(A) Attracting middle-aged customers unlikely to submit claims for benefits for many years

(B) Insuring only those individuals who did not suffer any serious diseases as children

(C) Including a greater number of services in the policy than are included in other policies of lower cost

(D) Insuring only those individuals who were rejected by other companies for similar policies

35. The average age of chief executive officers (CEO's) in a large sample of companies is 57. The average age of CEO's in those same companies 20 years ago was approximately eight years younger. On the basis of those data, it can be concluded that CEO's in general tend to be older now.

Which of the following casts the most doubt on the conclusion drawn above?

(A) The dates when the CEO's assumed their current positions have not been specified.

(B) No information is given concerning the average number of years that CEO's remain in office.

(C) The information is based only on companies that have been operating for at least 20 years.

(D) Only approximate information is given concerning the average age of the CEO's 20 years ago.

Directions : In the following, sentence correction question presents a sentence, all or part of which is underlined. Beneath the sentence you will find five ways of phrasing the underlined part. The first of these repeats the original; the other four are different. If you think the original is best, choose the first answer; otherwise choose one of the others.

36. If the venom of the cobra snake gets in the eyes, it can cause intense pain, damage the cornea, and blindness.

(A) damage the cornea, and blindness

(B) damage to the cornea, and blindness

(C) damage the cornea, and cause blindness

(D) damage to the cornea, and cause blindness

37. Slips of the tongue do not necessarily reveal concealed beliefs or intentions but rather are the result from the competition between various processing mechanisms in the brain.

(A) but rather are the result from

(B) and instead are the result from

(C) being rather the result of

(D) but rather result from

38. 38. The commission has directed advertisers to restrict the use of the word "natural" to foods that do not contain color or flavor additives, chemical preservatives, or nothing that has been synthesized.

(A) or nothing that has been

(B) nor anything that was

(C) and nothing that is
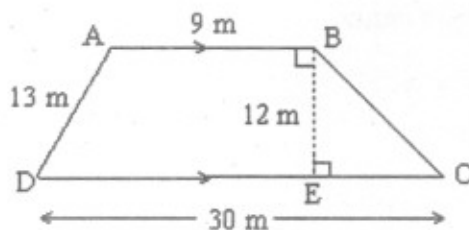
(D) or anything that has been

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39. The sale of government surplus machinery <u>will begin at 9 a.m. and continue until the supply lasts</u>.

    (A) will begin at 9 a.m. and continue until the supply lasts

    (B) begins at 9 a.m., continuing until the supply lasts

    (C) will begin at 9 a.m. and, until the supply lasts, will continue

    (D) will begin at 9 a.m. and continue as long as the supply lasts

40. What is the White House?

    (A) Rabindranath Tagore's Residence

    (B) The white colored house of President of India

    (C) American President's Official Residence

    (D) The tallest building in Dubai

Directions:

In this section you will be given two quantities, one in column A and one in column B. You are to determine a relationship between the two quantities and mark.

A.   *If the quantity in column A is greater than the quantity in column B.*

B.   *If the quantity in column B is greater than the quantity in column A.*

C.   *If the quantities are equal.*

D.   *If the comparison cannot be determined from the information that is given.*

41. Quantity A : $(-6)^4$

    Quantity B : $(-6)^5$

    (A) if the quantity A is greater;

    (B) if the quantity B is greater;

    (C) if the two quantities are equal;

    (D) if the relationship cannot be determined from the information given.

42. Quantity A : $(9/13)^2$

    Quantity B : $(9/13)^{1/2}$

    (A) Quantity A equals Quantity B

    (B) Relationship Indeterminate

    (C) Quantity B is greater

    (D) Quantity A is greater

43. $x = 2y + 3$

$y = -2$

Quantity A : x

Quantity B : -1

(A) if the quantity in Column A is greater;

(B) if the quantity in Column B is greater;

(C) if the two quantities are equal;

(D) if the relationship cannot be determined from the information given

44. Quantity A : The number of months in 7 years

Quantity B : The number of days in 12 weeks

(A) if the quantity in Column A is greater;

(B) if the quantity in Column B is greater;

(C) if the two quantities are equal;

(D) if the relationship cannot be determined from the information given

45. Quantity A : $(y + 5)^2$

Quantity B : $(y - 5)^2$

(A) Quantity B is greater

(B) Relationship Indeterminate

(C) Quantity A equals Quantity B

(D) Quantity A is greater

46. If 1 cm on a map corresponds to an actual distance of 40 kms. And the distance on the map between Bombay and Calcutta is 37.5 cms., the actual distance between them is :

(A) 375 kms   (B) 3750 kms   (C) 1500 kms   (D) 1375 kms

47. If the radius of a circle is increased by 20% then the area is increased by

(A) 120%   (B) 144%

(C) 40%   (D) None of the above

48. A plot of land is in the shape of a trapezium whose dimensions are given in the figure below :

Hence the perimeter of the field is

(A) 50 m   (B) 72 m

(C) 84 m   (D) None of the above

49. Two identical taps fill 2/5 of a tank in 20 minutes. When one of the taps goes dry in how many minutes will the remaining one tap fill the rest of the tank ?

(A) 5 minutes   (B) 10 minutes

(C) 20 minutes   (D) None of the above

50. At 10 a.m. two trains started traveling toward each other from stations 287 miles apart. They passed each other at 1:30 p.m. the same day. If the average speed of the faster train exceeded the average speed of the slower train by 6 miles per hour, which of the following represents the speed of the faster train, in miles per hour?

(A) 38   (B) 40   (C) 44   (D) 48

51. A rectangular tank 10" by 8" by 4" is filled with water. If all of the water is to be transferred to cube-shaped tanks, each one 3 inches on a side, how many of these smaller tanks are needed?

(A) 9   (B) 12   (C) 16   (D) 21

52. A survey recently conducted revealed that marriage is fattening. The survey found that on an average, women gained 23 pounds and men gained 18 pounds during 13 years of marriage. The answer to which among the following questions would be the most appropriate in evaluating the reasoning presented in the survey?

(A) Why is the time period of the survey 13 years, rather than 12 or 14?

(B) Did any of the men surveyed gain less than 18 pounds during the period they were married?

(C) How much weight is gained or lost in 13 years by a single people of comparable age to those studied in the survey ?

(D) When the survey was conducted were the women as active as the men?

53. Authorities concerned with mass transport in metropolitan cities are struggling with deficits. Commuters complain about delays and breakdowns, cuts in service, and fares higher than they are accustomed to paying. For all these reasons and because the price of fuel is still not prohibitive, the number of commuters using public transportation has fallen, adding to the deficits.

Which among the following statements about the relationship between the number of commuters using public transportation and the price of fuel is best supported by the above passage?

(A) With the rise in the price of fuel, there is a rise in the number of commuters using public transportation.

(B) Even if the price of fuel rises, the number of commuters using public transportation will continue to decline.

(C) The number of commuters using public transportation will rise, if the price of fuel rises to a prohibitive level.

(D) Most of the commuters using public transportation do not use fuel, therefore fluctuations in the price of fuel is unlikely to affect the number of commuters using public transportation.

54. Which among the following statements is the most probable taking into consideration the source and the degree of seriousness with which they are uttered?

    (A) Examiner: "The exam will be taken under the honor system: the professors have the honor, and the students have the system."

    (B) Banker: "The low percentage of Jews in this bank has nothing to do with discrimination. Jews don't seem to be interested in banking."

    (C) Book cover: "This book is sure to become the last word in its field."

    (D) Politician: "My opponent has an impeccable political and personal record."

55. According to the laws pertaining to the use of recyclable containers, beverages are sold only in reusable containers. The people who object to such laws point out that the collection of reusable bottles requires gasoline, and washing them requires water; but, it takes less water to wash these containers than it does to make throwaway bottles. The expenditure saved due to the saved water exceeds the cost of the gasoline used to transport empty bottles.

    The above passage directly answers which of the below mentioned objections to recyclable beverage containers?

    (A) It is likely that consumers will continue to discard even the recyclable containers.

    (B) Consumers will find it an inconvenience to return bottles.

    (C) The extra expense involved in recycling would raise the prices of beverages.

    (D) Recycling would be detrimental to the glass and plastic industries, which produce containers.

56. People should be held accountable for their own behavior, and if holding people accountable for their own behavior entails capital punishment, then so be it. However, no person should be held accountable for behavior over which he or she had no control.

    Which of the following is the most logical conclusion of the argument above?

    (A) People should not be held accountable for the behavior of other people.

    (B) People have control over their own behavior.

    (C) People cannot control the behavior of other people.

    (D) Behavior that cannot be controlled should not be punished.

57. Although most of the fastest growing jobs in today's economy will require a college degree, many of the new jobs being created-from home health aide to desktop publisher-require knowledge other than that gained from earning a degree. For workers in those jobs, good basic skills in reading, communigreion, and mathematics play an important role in getting a job and developing a career.

From the information given above it can be validly concluded that, in today's economy,

(A) skills in reading, communigreion, and mathematics play an important role in developing a career as a desktop publisher

(B) the majority of the new jobs being created require knowledge other than that gained from earning a college degree

(C) a job as a home health aide will rely more on communigreion skills than on basic skills in reading and mathematics

(D) if a job is one of the fastest growing jobs, it will require a college degree

58. Mrs. Mason is gifted with psychic powers that enable her to foretell future events. In the past, Mrs. Mason has predicted such actual events as the election of President Clinton, the stock market crash of 1987, and the St. Louis Cardinals' 1982 World Series victory. These are just a few of Mrs. Mason's accurate predictions.

The answer to which of the following questions would be most useful in evaluating the strength of the argument above?

(A) What percentage of Mrs. Mason's predictions has come true?

(B) Could the election of President Reagan have been predicted without the help of psychic powers?

(C) What is the actual mechanism by which Mrs. Mason's psychic powers are supposed to operate?

(D) How long before the events in question did Mrs. Mason make her accurate predictions?

59. Studies of fatal automobile accidents reveal that, in the majority of cases in which one occupant of an automobile is killed while another survives, it is the passenger, not the driver, who is killed. It is ironic that the innocent passenger should suffer for the driver's carelessness, while the driver often suffers only minor injuries or none at all.

Which of the following is an assumption underlying the reasoning in the passage above?

(A) In most fatal automobile accidents, the driver of a car in which an occupant is killed is at fault.

(B) Drivers of automobiles are rarely killed in auto accidents.

(C) Most deaths in fatal automobile accidents are suffered by occupants of cars rather than by pedestrians.

(D) Auto safety experts should increase their efforts to provide protection for those in the passenger seats of automobiles.

60. Several movie versions of Charles Dickens' Tale of Two Cities have been made. The original movie version made in 1939 is the best because it is closest in spirit to the original novel.

An underlying assumption of the argument above is that a movie based on a novel should:
(A) reflect the director's original interpretation of the main themes of the novel.
(B) accurately depict the time and place in which the novel is set.
(C) feature actors and actresses who closely resemble the characters in the novel both in body and spirit.
(D) capture the true meaning and intention of the novel.

61. ——————— research tests the hypothesis (hypotheses) of a research problem formulated by ——————— research and draws definite conclusion(s).
(A) Conclusive, Explorative
(B) Explorative, conclusive
(C) Both (A) and (B)
(D) None of the above

62. α is the ——————— level in testing of hypothesis.
(A) confidence level
(B) significance level
(C) quality level
(D) none of the above

63. In ANOVA, the values/ settings of a particular factor are called ———————.
(A) Treatments
(B) Levels
(C) Both (A) and (B)
(D) None of the above

64. Among the following designs, ——————— is the superior design.
(A) Completely randomized design
(B) Factorial design
(C) Latin square design
(D) Randomized complete block design

65. In factorial design, if the number of replications is one, the sum of squares of error is ———————.
(A) ∞
(B) 1
(C) 0
(D) None of the above

66. ——————— test is to be used when the sample size is less than or equal to 30.
(A) Z
(B) t
(C) Chi-square
(D) None of the above

67. For ——————— distribution, the mean and variance are 0 and 1, respectively.
(A) t
(B) Standard Normal
(C) Poisson
(D) None of the above

68. Scree plot is used in ——————— analysis.
(A) Cluster analysis
(B) Factor analysis
(C) Factorial analysis
(D) None of the above

69. In factor analysis, the sum of the factor loadings of each row is called ——————.
   (A) Eigenvalue
   (B) Communality
   (C) Principle component
   (D) None of the above

70. Profile diagram is used in ——————.
   (A) Factor analysis
   (B) Conjoint analysis
   (C) Cluster analysis
   (D) Regression analysis

71. The solution of (M/M/1): (GD/∞/∞) will be trivial if the arrival rate is —————— than service rate.
   (A) less
   (B) more
   (C) both (A) and (B)
   (D) none of the above

72. In —————— scheduling problem, the makespan measure will be the same for all the sequences.
   (A) Single machine   (B) Flow shop   (C) Job shop   (D) Open shop

73. Work sampling technique is associated with ——————.
   (A) Quality control
   (B) Time study
   (C) Maintenance management
   (D) Project management

74. —————— are construction type of algorithms to design plant layout.
   (A) ALDEP and CORELAP
   (B) ALDEP and CRAFT
   (C) CORELAP and RPW
   (D) CRAFT and COFAD

75. —————— is the application of a set of techniques to an existing product with a view to improving its value.
   (A) Value engineering
   (B) Value analysis
   (C) Valuation of assets
   (D) None of the above

76. In Simplex method, —————— will serve as a basic variable.
   (A) slack variable
   (B) artificial variable
   (C) both (A) and (B)
   (D) surplus variable

77. —————— aims to connect all the nodes in a network without any cycle.
   (A) Shortest path problem
   (B) Minimum spanning problem
   (C) Maximal flow problem
   (D) None of the above

78. —————— scale is used for stimuli.
   (A) Thurstone's Case-V
   (B) Likert
   (C) Both (A) and (B)
   (D) None of the above

79. —————— is used to predict the demand of a product just a period ahead only.
   (A) Linear regression
   (B) Moving average method
   (C) Exponential smoothing method
   (D) Delphi method

80. —————— links the solutions of the subproblems of dynamic programming problem.
   (A) Stage
   (B) State
   (C) Recursive function
   (D) Pivot-element

81. Demand during lead time is called reorder level, if ————————.
   (A) lead time and demand are deterministic
   (B) lead time is varying and demand is deterministic
   (C) lead time is deterministic and demand is varying
   (D) lead time and demand are varying

82. Before upgrading your operating system, you should first
   (A) remove TSRs   (B) backup your hard drive
   (C) run scandisk   (D) run chkdsk

83. IMS is a ———————— DBMS.
   (A) Hierarchical   (B) Network
   (C) Relational   (D) None of the above

84. In DBMS, a relation means a ————————.
   (A) record   (B) field
   (C) file   (D) none of the above

85. ———————— distribution is a function of its upper limit and lower limit.
   (A) Normal distribution   (B) Poisson distribution
   (C) Uniform distribution   (D) T-distribution

86. The ratio between the sum of squares due to regression and sum of squares total is called ————————.
   (A) correlation coefficient   (B) coefficient of determination
   (C) coefficient of variation   (D) none of the above

87. ———————— is a method for factor analysis.
   (A) Cluster technique   (B) Centroid method
   (C) Discriminant technique   (D) None of the above

88. The data on preference ratings of 10 similar brands of televisions by two judges are analyzed using ————————.
   (A) Correlation coefficient   (B) Rank correlation
   (C) Mode   (D) None of the above

89. Duncan's multiple test is associated with ————————.
   (A) Regression analysis   (B) Factor analysis
   (C) ANOVA   (D) Conjoint analysis

90. Duality helps to minimize ————————.
   (A) the number of constraints   (B) the number of variables
   (C) total time to solve the problem (D) all the above