Entrance Examination – 2020

(Ph.D. Admissions - January 2021 session)

Ph.D. ECONOMICS

Time: 2 Hours   **Max. Marks: 70**

HALL TICKET NUMBER

INSTRUCTIONS

1. **Read the instructions carefully before answering.**

2. Enter your Hall Ticket Number on this page <u>and</u> on the OMR answer sheet.

3. Answers are to be marked on the OMR answer sheet following the instructions provided thereon.

4. Handover the OMR answer sheet at the end of the examination, to the invigilator.

5. There are 70 questions in this paper. The question paper has **two** parts: PART-A and PART-B. PART-A contains 35 questions and PART-B also contains 35 questions. Marks obtained in PART-A will determine the merit rank in case of a tie in the total number of marks obtained.

6. Each correct answer carries <u>**one**</u> mark. There is **no negative marking.**

7. The question paper contains 18 pages including the cover page and pages for rough work.

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PART-A

1. Validity of data implies the following

    A. The data should truly speak of the facts.
    B. The data should be of recent origin.
    C. The data should be primary in nature.
    D. Data should have general applicability.

2. If the population standard deviation is substantially large, then the sample size should be relatively

    A. small.
    B. large.
    C. medium.
    D. very small.

3. Omission or changing of research results to support claims is known as:

    A. Fabrication
    B. Falsification
    C. Plagiarism
    D. Data acquisition

4. A shift in attitude in respondents between two points during data collection is called

    A. Reactive effect
    B. Maturation effect
    C. Regression effect
    D. Conditioning effect

5. Artefacts that arise and affect the internal validity in research are:

    (a) History
    (b) Randomization
    (c) Maturity
    (d) Instrumentation
    (e) Experimental mortality
    (f) Matching

    A. (a), (b), (c) and (d)
    B. (b), (c), (d) and (f)
    C. (a), (c), (d) and (e)
    D. (d), (e), (f) and (b)

6. The principal of a school conducts an interview session of teachers and students with a view to exploring the possibility of their enhanced participation in school programmes. Which of the following relates to this endeavour??

    A. Evaluation Research
    B. Fundamental Research
    C. Action Research
    D. Applied Research

7. Which of the following could be used as a test for autocorrelation up to third order?

    A. Durbin-Watson test
    B. White's test
    C. RESET test
    D. Breusch-Godfrey test

8. If you include relevant lagged values of the dependent variable on the right hand side of a regression equation, the following may be the outcome

    A. coefficient estimates shall be Biased but consistent

    B. coefficient estimates shall be Biased and inconsistent

    C. coefficient estimates shall be Unbiased but inconsistent

    D. coefficient estimates shall be Unbiased and consistent

9. Consider the following statements

    1. Discrete random variables have probability density functions that give the probability that the random variable takes a specific value.
    2. Random variables have values that are unknown until they are observed.
    3. Random variables can be continuous only.
    4. Covariance indicates the amount of covariation exhibited by single random variables

  Of these the following statements are correct
    A. 1 and 2
    B. 1, 2 and 3
    C. 2, 3 and 4
    D, 1, 3 and 4

10. Which of the following is NOT a type of non-probability sampling?

    (i) Convenience sampling, Quota sampling.
    (ii) Judgemental sampling, Snowball sampling.
    (iii) Cluster Sampling, Multi-Stage Sampling
    (iv) Systematic sampling, Stratified Sampling

Of these the following options are correct

    A. (i) and (ii)
    B. (iii) and (iv)
    C. (i), (ii) and (iii)
    D. (i), (ii), (iii) and (iv)

11. Let X and Y be random variables with a positive covariance: Cov $(X,Y) = K > 0$.
Let $S = 0.4.X$ and $T = -2.5Y$. Arrange the following in increasing order of magnitude of covariance, from smallest to largest:

    I. Cov (X,Y)
    II. Cov (T,S)
    III. Cov (X,T)
    IV. Cov (Y,S)

    A. II – III – I – IV
    B. III – II – IV – I
    C. III – IV – II – I
    D. IV – II – I – III

12. Statement, "Rabi and Nabi are doctors" is FALSE *if,*

    A. Nabi is a doctor if Rabi is not a doctor.
    B. At least one of them is not a doctor.
    C. Neither Rabi nor Nabi is a doctor.
    D. Some person other than Rabi and Nabi is doctor.

13. Consider, "Some men are immortal. My teacher is a man. Therefore my teacher is immortal". This is invalid because,

    A. Premise is false
    B. Conclusion is false
    C. Conclusion does not logically follow from the premises
    D. There are two premises but only one conclusion

14. Which of the following demand functions has unitary elasticity everywhere?

    A. Linear
    B. Quadratic
    C. Rectangular hyperbola
    D. Polynomial

15. For a system of 'n' linear equations with 'n' unknown variables

    A. There is always a solution
    B. There is always a unique solution
    C. If there is one solution, then there is also another solution
    D. None of the above

16. Which is true for logit and probit models?

    A. Both models guarantee that the estimated probabilities lie in the 0 to 1 range
    B. In both models, dependent and independent variables are quantitative values
    C. In both models, estimated probabilities are linearly related to explanatory variables
    D. All of the above

17. The autocorrelation problem in econometrics is a problem related to

    A. Serial correlation among explanatory variables.
    B. Serial correlation in disturbance terms.
    C. Correlation between dependent variable and explanatory variables.
    D. Correlation between the explanatory variables and disturbance terms.

18. Under which assumption are the Maximum Likelihood and Ordinary Least Squares estimators of the intercept and slope parameters of the regression model are identical?

    A. the maximum likelihood assumption
    B. the normality assumption
    C. the classical linear regression model assumptions
    D. the null hypothesis assumption

19. "Optimal Control Theory" method is one of the solution methods to solve:

    A. the investment decisions in simultaneous equations model
    B. the non-linear programming problem
    C. the linear programming problem
    D. the dynamic optimization

20. In a linear programming problem, which is not true?

    A. It has linear objective function
    B. Both negative and nonnegative restrictions are put on choice variables
    C. Optimal solution values in the primal and dual problems may or may not be similar
    D. Objective function values in the primal and dual solutions are similar

21. Note the relation TSS = ESS + RSS where TSS is the total sum of squares, ESS is the explained sum of squares and RSS is the residual sum of squares.

Consider following statements:
I. If RSS = 0.0054 and ESS = 0.693, then R-square value is equal to 0.3016
II. If ESS = TSS, then the R-square value is exactly equal to one or 100%
III. If ESS is very low, RSS is very high, the regression line fits very well to sample data.

Which of the above statements is TRUE?

    A. Only I is true
    B. Only II is true
    C. Only III is true
    D. Only II and III are true

22. Area sampling is a type of:

    A. Purposive Sampling
    B. Subjective Sampling
    C. Judgement Sampling
    D. Mixed Sampling

23. Neoclassical Economics under the stewardship of Marshall-Jevons-Walras followed

    A. Methodological holism
    B. Methodological individualism
    C. Methodological nihilism
    D. Methodological inductivism

24. Formalism in Economics refers to construction of models based on

    A. Statistical evidence
    B. Ethnographic observations
    C. Mathematical axioms
    D. Descriptive narration

25. Participatory rural appraisal is not used in

    A. Applied Anthropology
    B. Agricultural farming techniques
    C. Agro-eco system
    D. Psychology

26. Lorenz curve is used for measuring

    A. Inequalities in the population
    B. Industrial pollution
    C. GDP
    D. Inflation

27. A risk averse individual is offered a choice between a gamble that pays ₹1000 with a probability of 25% and ₹100 with a probability of 75%, or a payment of ₹325. Which would he choose?

    A. Depends on utility function
    B. Gamble that pays ₹1000
    C. Gamble that pays ₹100
    D. Payment of ₹325

28. Which among the following statements is incorrect?

    A. Coefficient of correlation can be computed directly from the data without measuring deviation.
    B. Measures of Dispersion are also called averages of the second order.
    C. Standard deviation can be negative.
    D. Mean deviation can never be negative.

29. Which of the following is a Reference Management Software?

    A. Turnitin
    B. ProWritingAid
    C. Zoreto
    D. Biblio Premium

30. What is the study of claims to knowledge?

    A. Epistemology
    B. Coherent-ism
    C. Teleology
    D. Ontology

31. In critical thinking, the statements given in support of another statement are called:

    A. The conclusion
    B. The argument
    C. The evaluation
    D. The premises

32. Data collected from Coal India Limited, Oil and Natural Gas Corporation Limited and Steel Authority of India Limited over 10 years is an example of:

    A. Time series data
    B. Cross-sectional data
    C. Panel data
    D. Pooled data

33. Suppose A is a 3 X 3 matrix and B is a 3 X 2 matrix. Can we say AB is a conformable matrix?

    A. No
    B. Yes
    C. Probably No
    D. Insufficient information

34. Which of the following variables has none of the features of the ratio scale variable?

    A. Nominal Scale
    B. Interval Scale
    C. Ordinal Scale
    D. None of the above

35. In statistical fallacies, prestige bias is a type of

    A. Enumerator's bias
    B. Investigator's bias
    C. Respondent's bias
    D. Non-response bias

PART-B

36. A regime of crawling peg means

    A. The exchange rate moves, but by amounts too little to notice
    B. The exchange rate is permitted to change only slowly within the band
    C. The par value of the currency is kept secret and changed slowly over time
    D. The central value of a pegged exchange rate is changed frequently, by small amounts, and with advance notice

37. The Smoot-Hawley Tariff Act

    A. Created NAFTA
    B. Raised US tariffs on hundreds of products at the start of the 1930s
    C. Raised tariffs on tulips imported into the Netherlands to over 100%
    D. Restricted US imports of motorcycles in the 1970s

38. If international trade takes place as a result of comparative advantage, it will have the following effect on participating countries:

    A. Inequality among households will be reduced
    B. All individuals in each country will be better off
    C. The average well-being of people in both countries will increase
    D. Both countries will grow faster over time

39. The presence of increasing returns to scale in an industry tends to

    A. Make that industry perfectly competitive
    B. Discourage producers from exporting
    C. Give a comparative advantage in that industry to large countries
    D. None of the above

40. The threshold level of emission is

    A. The maximum level of emission
    B. The zero level of emission
    C. The minimum level of emission to cause a damage
    D. None of the above

41. Environmental Surrogates is a special case of

    A. Preventive Expenditure Method
    B. Replacement Method
    C. Opportunity Cost Approach
    D. Effects on Production Approach

42. The same equipment producing multiple products more cheaply in combination than separately is an example of

A. Economies of Scale
B. Diseconomies of Scale
C. Economies of Scope
D. None of the above

43. The production function of a firm is $Q = 100L^{0.5}K^{0.5}$.

If $K = 100$, $P = 1$, $w = 30$ and $r = 40$, what is the quantity of labour that the firm should hire in order to maximize its total profits?

A. 500
B. 150
C. 100
D. 50

44. Manisha is willing to trade 3 apples for 1 orange when she has 6 apples and 5 oranges. She is also willing to trade 6 apples for 2 oranges when she has 12 apples and 3 oranges. She is indifferent between bundle (6, 5) and bundle (12, 3). What is the shape of the indifference curve?

A. Linear
B. L-shaped
C. Positive slope
D. Vertical line

45. The cost function $c(w, y) = y^{1/2}(w_1 w_2)^{3/4}$ is

A. Monotonic and concave
B. Monotonic but not concave
C. Concave but not monotonic
D. Neither Monotonic nor concave

46. The amount of money we can take away from an individual, after an economic change, while having him as well off as he was before the economic change, is called as

A. Compensating variation
B. Equivalent variation
C. Consumer surplus
D. None of the above

47. A good is subject to periodic increase in supply. Each time supply increases the supplier finds total revenue decreasing. Which of the following must be true for the good

    A. It is an inferior good
    B. Price inelastic supply
    C. Price inelastic demand
    D. None of the above

48. Given monopoly, constant returns to scale, constant costs and a linear demand function

    A. Output would be one half of the output under perfect competition
    B. Output would be one-third of the output under perfect competition
    C. Output would be one-fourth of the output under perfect competition
    D. Output would be one-tenth of the output under perfect competition

49. The Basel committee was formed after the failure of

    A. Bankhaus Herstatt
    B. Bank of America
    C. Lehman Brothers
    D. Barings Bank

50. The rate at which the Reserve Bank of India buys or rediscounts bills of exchange or other commercial papers is the

    A. Repo rate
    B. Reverse repo rate
    C. MSF
    D. Bank rate

51. The expert committee constituted by RBI to revise monetary policy framework in 2013 recommended the following to be nominal anchor

    A. Wholesale price index
    B. Consumer price index
    C. GDP deflator
    D. Producer price index

52. Which of the following is aimed at ensuring that banking sector capital requirements take account of the macro-financial environment in which banks operate?

    A. Cyclical capital buffer
    B. Countercyclical capital buffer
    C. Capital conservation buffer
    D. None of the above

53. Which of the following statements is TRUE?

   A. The return on a bond will not necessarily equal the interest rate on that bond.
   B. The return on a bond will necessarily equal the interest rate on that bond.
   C. The return on a bond equals the rate of capital gain on the bond.
   D. The return on a bond equals the weighted overnight money market rate.

54. Duration is a measure of

   A. interest rate risk
   B. liquidity risk
   C. operational risk
   D. credit risk

55. Return on equity is

   A. Return on assets X Equity multiplier
   B. The same as return on assets
   C. Return on assets/Equity multiplier
   D. None of the above

56. Baumol's square root rule implied that

   A. transactions demand for money is positively related to interest rate
   B. transactions demand for money is negatively related to interest rate
   C. an increase in brokerage costs would decrease the demand for money
   D. transaction demand for money is negatively related to income

57. The Lucas critique is based on

   A. Phillips curve
   B. inside lag of policy
   C. rational expectations
   D. automatic stabilizers

58. How does Muhammad Yunus' microfinance scheme respond to adverse selection problems in microfinance?

   A. By implementing the requirement that borrowers put up collateral, such as motor bikes or livestock.
   B. By the use of specialized training to help the members of the bank to become better informed of savings and investment strategies.
   C. By placing borrowers in groups of people who know each other and giving the groups control over who receives loans, which results in the groups selecting those members most likely to pay back loans.
   D. By requiring collateral of all borrowers which is some fraction of how much the group borrowed

59. Given constant returns to labour, if 2 workers produced 14000 bales of hay, how many bales of hay would 5 workers produce?

    A. 14000
    B. 25000
    C. 35000
    D. 50000

60. Which among the following is not an assumption of Pareto optimality?

    A. Every consumer wishes to maximize his level of satisfaction
    B. All the factors of production are used in the production of every commodity
    C. Conditions of perfect competition exist making all the factors of production perfectly mobile
    D. The concept of utility is cardinal and cardinal utility function of every consumer is given.

61. Which five-year plan in India had 'poverty alleviation' as one of its objectives?

    A. First five-year plan
    B. Third five-year plan
    C. Fifth five-year plan
    D. Seventh five-year plan

62. A situation in which an economy is growing at such a slow pace that more jobs are being lost than are being added is:

    A. Stagflation
    B. Recession
    C. Growth Recession
    D. Ratchet Inflation

63. The division of labour, according to Adam Smith, is limited by

    A. Quantity of labour force
    B. Extent of the market
    C. Size of the labour force
    D. Lesser wage share

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64. "When parties can bargain without any transaction cost, and to their mutual advantages, the resulting outcome will be efficient, regardless of how property rights specified".
This statement is related to

A. Pigouvian tax of negative externality
B. Marginal social cost (MSC) in externality analysis
C. Coase Theorem
D. Market failure theory due to public goods

65. India, for the first time after independence, devalued the rupee *vis-à-vis* the US dollar in the year

A. 1948
B. 1949
C. 1950
D. 1951

66. India's tenth five year plan coincides with the period

A. 2002 - 2007
B. 2000 - 2006
C. 2001 - 2006
D. 2003 - 2008

67. Incidence of -------- taxes can be shifted.

A. direct
B. indirect
C. capital-gains
D. income

68. 'A Plan of Economic Development' submitted in 1943 by eight industrialists in India was popularly known as

A. The Bombay Plan
B. The People's Plan
C. The Gandhian Plan
D. The Visvesvarayya Plan

69. The most recent GDP growth estimates for Indian economy indicate

A. A V-shaped recovery with (-) 7.5 % growth in Q2 of 2020-21
B. A V-shaped recovery
C. An impending recession
D. A further decrease in growth

70. The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel for 2020 went to
    A. Granger and Engel
    B. Abhijeet Banerjee
    C. Milgrom and Wilson
    D. Nordhaus and Romer

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PhD (Economics) January 2021

KEY

Q.No.	Key	Q.No.	Key	Q.No.	Key
1	A	26	A	51	B
2	B	27	D	52	B
3	B	28	C	53	A
4	C	29	C	54	A
5	C	30	A	55	A
6	C	31	D	56	B
7	D	32	C	57	C
8	A	33	B	58	C
9	A	34	A	59	C
10	B	35	C	60	D
11	B	36	D	61	C
12	B	37	B	62	C
13	C	38	C	63	B
14	C	39	C	64	C
15	D	40	C	65	B
16	A	41	A	66	A
17	B	42	C	67	B
18	B	43	C	68	A
19	D	44	A	69	A
20	B	45	B	70	C
21	B	46	A		
22	D	47	C		
23	B	48	A		
24	C	49	A		
25	D	50	D		