

Entrance Examinations - 2022

Ph.D. ECONOMICS

Time: 2 Hours

Max. Marks: 70

HALL TICKET NUMBER

INSTRUCTIONS

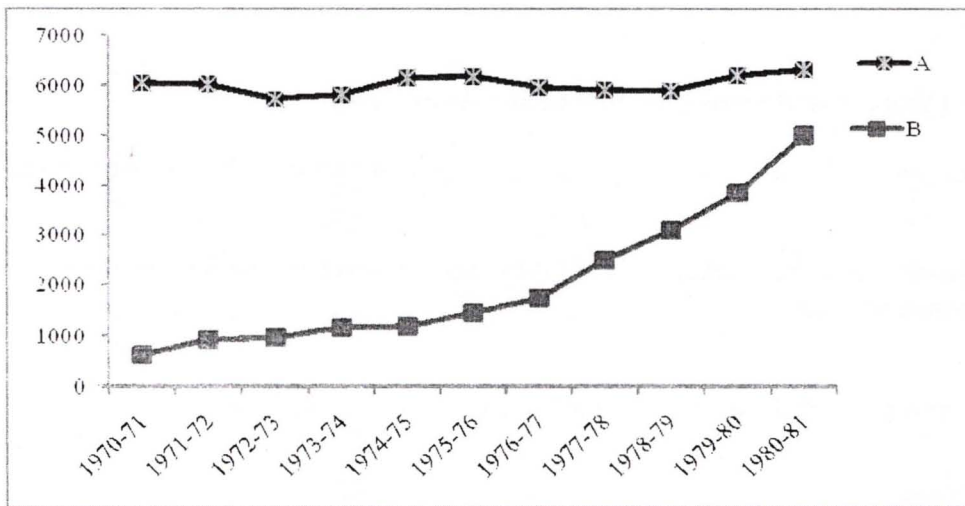
1. Read these instructions carefully before answering.
2. Enter your Hall Ticket Number on this page and also on the OMR answer sheet.
3. Answers are to be marked on the OMR answer sheet following the instructions provided thereon.
4. Handover the OMR answer sheet at the end of the examination.
5. Use of non-programmable calculator is allowed.
6. There are 70 questions in this paper. The Question Paper has **two parts** – **PART-A** and **PART-B**. The **PART-A** contains 35 questions and the **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.
7. Each correct answer carries one mark. There is no negative marking.
8. If a particular question has more than one correct answer, select the best answer.
9. This question paper contains 19 pages including the cover page and 2 pages for rough works.

PART-A

1. In the equity price channel of monetary transmission mechanism the wealth effect refers to the following

- A. An expansionary monetary policy results in decrease in financial wealth and aggregate output
- B. An expansionary monetary policy results in increase in financial wealth resulting in higher consumption and aggregate output
- C. An expansionary monetary policy results in increase in financial wealth without any effect on consumption and aggregate output
- D. An expansionary monetary policy results in decreasing stock prices

2. Consider the following three statements based on information in the following **diagram** of GDP (in absolute values of rupees thousand crores) of country A and country B during 1970-71 to 1980-81.



- I. GDP growth rate of country A will be higher than the growth rate of country B during the study period.
- II. GDP growth rate of country B will be higher than the growth rate of country A during the study period.
- III. GDP growth rate of country A will be equal to the growth rate of country B during the study period.

Which of the following is correct?

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

3. Consider the following paragraph.

“In this method, a desired number of sample units is selected deliberately depending upon the object of the enquiry so that only the important items representing the true characteristics of the population are included in the sample. An obvious and serious drawback of this sampling scheme is that it is highly subjective in nature....” (Source: S. C. Gupta, “Fundamentals of Statistics”, Himalaya Publishing, Chapter-15).

The above paragraph is talking about the _____

- A. Simple random sampling
- B. Systematic sampling
- C. Stratified random sampling
- D. Purposive sampling

4. Consider the following three statements based on the data given in Table 1

- I. Andhra and Haryana had lower fluctuation (reflected by CV) than all India in rice production during the study period.
- II. Annual compound growth rate of rice production in Punjab was the highest but the fluctuation (reflected by CV) was the lowest in Assam and West Bengal (WB).
- III. Annual compound growth rate of rice production in Punjab was the highest but the fluctuation (reflected by CV) was also the highest.

Table 1: Total Rice Production of Some Indian States (Production in Million Kilogram)

	Andhra	Punjab	Haryana	Orissa	WB	Assam	Karnatak	Kerala	India
1970-71	4786	688	460	3467	6140	1981	1953	1298	42225
1971-72	4717	920	536	3648	6508	1908	2097	1351	43068
1972-73	4257	955	462	3983	5715	2177	1749	1376	39245
1973-74	5583	1163	540	4404	5799	2066	2131	1257	44051
1974-75	5700	1179	393	3166	6543	1984	1986	1334	39579
1975-76	6451	1447	625	4532	6866	2290	2259	1365	48740
1976-77	4930	1741	815	3218	5949	2133	1481	1254	41917
1977-78	5605	2494	965	4319	7495	2311	2281	1295	52671
1978-79	7432	3091	1228	4402	6677	2172	2175	1265	53773
1979-80	6307	3041	942	2963	5887	1881	2370	1293	42330
1980-81	7011	3223	1228	4301	7466	2523	2208	1272	53631
Mean	5707	1813	745	3855	6459	2130	2063	1305	45566
CV (%)	18	53	41	15	10	9	13	3	12
ACGR (%)	4.3	17.7	11.5	0.5	1.3	1.3	1.5	-0.5	2.3

Notes: SD = standard deviation, CV = coefficient of variation & ACGR = annual compound growth rate

Sources: Compiled from 'Area and Production of Principal Crops in India', GOI, (Various issues)

Which of the following is correct?

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

5. If a Durbin Watson statistic takes a value close to zero, what will be the value of the first order autocorrelation coefficient?

- A. Close to zero
- B. Close to minus one
- C. Close to plus one
- D. Close to either minus one or plus one

6. Which of the following method is used in constructing national income of the service sector in India?

- A. Product Approach
- B. Expenditure Approach
- C. Income Approach
- D. Service Approach

7. Let S and T be two independent events in a random experiment where probabilities of S and T are such that $0 < P(S) < 1$ and $0 < P(T) < 1$. Then,

- A. $P(S|T) = P(S)$
- B. $P(S \cup T) = P(S) + P(T)$
- C. S and T are mutually exclusive events
- D. $P(S \cap T) = P(S) = P(T)$

8. In an economy, size of market for a fast growing industry doubles every two years. If the industry keeps growing at this rate for 10 years, then the size of market after 10 years will be:

- A. 5 times the size of market at the beginning
- B. 6 times the size of market at the beginning
- C. 32 times the size of market at the beginning
- D. 1024 times the size of market at the beginning

9. Impossibility of 'Paretian Liberal' is propounded by:

- A. Arrow, K. J.
- B. Gibbard, A.
- C. Pigou, A. C.
- D. Sen, A. K.

10. A fair coin is tossed three times. Let event S be that all three tosses are Heads. Let event T be that all three tosses are Heads given that the second toss is known to be Heads. Then,

- A. $P(S) > P(T)$
- B. $P(S) = P(T)$
- C. $P(S) < P(T)$
- D. Can't say which event has higher probability or whether both events have equal probability

11. A person is faced with a choice set containing exactly two elements. Then any binary reflexive relation defining her/his preferences necessarily satisfies:

- A. Transitivity
- B. Completeness
- C. Anti-symmetry
- D. None of the above

12. Which of the following are the indicators of "World Happiness Index"?

- (i). GDP per capita
- (ii). Social support
- (iii). Environmental sustainability
- (iv). Healthy life expectancy
- (v). Generosity

Select the correct answer using the codes given below:

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

13. Which of the following is disadvantage of using pure time-series models (relative to structural models)?

- A. They are not theoretically motivated
- B. They cannot produce forecasts easily
- C. They cannot be used for very high frequency data
- D. It is difficult to determine the appropriate explanatory variables for use in pure time-series models

14. Which of the following is the significant shift that happened in economic discipline from classical to neoclassical economics?

- A. Finding self-interest as major assumption
- B. Methodological individualism
- C. Competition as a virtue
- D. Monopoly as a possibility

15. Which of the following biases the Laspeyres Index method may contain, which is often used in estimating inflation?

- A. Overestimation bias
- B. Underestimation bias
- C. Underrepresentation bias
- D. Overrepresentation bias

16. Which of the following is NOT a formal experimental design?

- A. After-only with control design
- B. Randomized block design
- C. Completely randomized design
- D. Factorial design

17. Qualitative research concentrates on a set of purposes. They are:

- A. Deduction, Objectivity, Generality
- B. Induction, Objectivity, Context
- C. Deduction, Subjectivity, Generality
- D. Induction, Subjectivity, Context

18. Most frequently used summated scales in the study of social attitudes follow the pattern devised by _____.

- A. Louis Guttman
- B. Rensis Likert
- C. Charles E. Osgood
- D. G. J. Suci

19. In the three-dimensional Euclidean space, what is the distance between the following points (3, 2, 8) and (0, -1, 5)?

- A. $\sqrt{10}$
- B. $\sqrt{19}$
- C. $\sqrt{27}$
- D. $\sqrt{42}$

20. In the determinant $\begin{vmatrix} 9 & 8 & 7 \\ 6 & 5 & 4 \\ 3 & 2 & 1 \end{vmatrix}$, the minor and cofactor of the element 8 is _____

- A. -6 and 6 respectively
- B. 6 and -6 respectively
- C. 3 and -3 respectively
- D. -3 and 3 respectively

21. $\int x e^x dx =$ _____

- A. $e^x(x + 1) + c$
- B. $e^x(x - 1) + c$
- C. $\frac{x^2}{2} + e^x + c$
- D. $\frac{x^2}{2} - e^x + c$

22. To test the presence of structural break in a regression model, which of the following dummy variable model is the most appropriate model?

- A. ANOVA Model
- B. ANCOVA Model
- C. Interaction Model
- D. Probit Model

23. Heckman's two step regression model (a *probit* regression model is followed by an OLS model in the step two) is developed to deal with the problem of:

- A. Heteroscedasticity
- B. Sample selection bias
- C. Auto-correlation
- D. Multicollinearity

24. An equivalent expression for saying that the explanatory variable is "non-stochastic" is _____.

- A. The explanatory variable is fixed in repeated samples
- B. The explanatory variable is partly random
- C. The explanatory variable is correlated with the errors
- D. The explanatory variable always has a value of one

25. What is a sampling error?

- A. It is a difference between the targeted number of sample and that of the collected sample
- B. It is a missing data in collected questionnaires
- C. It is a difference between the mean value of a sample and that of the population
- D. It is a missing value in census data and NSSO data

26. The hourly wages of a sample of 130 system analysts are given below:
mean = 60, range = 20, mode = 73, variance = 324 and median = 74.
The coefficient of variation equals _____.

- A. 0.30%
- B. 30%
- C. 5.4%
- D. 54%

27. What are the conditions in which Type-I error occurs?

- A. The null hypothesis get accepted even if it is false
- B. The null hypothesis get rejected even if it is true
- C. Both the null hypothesis as well as alternative hypothesis are rejected
- D. None of the above

28. Two statements are given followed by four conclusions. Read all the conclusions and decide which of the given conclusions logically follow from the two given statements, disregarding commonly known facts.

Statements:

1. Some doors are mangoes
2. All mangoes are bananas

Conclusions:

- I. All bananas are mangoes
- II. All doors are bananas
- III. Some doors are bananas
- IV. Some mangoes are doors

- A. Only I and II follow
- B. Only III and IV follow
- C. Only II and III follow
- D. None follows

29. In case of adverse selection model, for example, workers with different productivities, can there exist a pooling equilibrium?

- A. Yes
- B. No
- C. Maybe
- D. Need more information

30. For Oil importing countries, the increase in oil prices can lead to which of the following?

- a. Favourable terms of trade
- b. Balance of trade deficit
- c. Price inflation
- d. Increase in CPI (Consumer price index)

Choose the correct answer

- A. (a) (b) and (c) only
- B. (b) (c) and (d) only
- C. (c) (d) and (a) only
- D. (a) and (d) only

31. Given below are two statements

Statement I: A number is divisible by 3, if the sum of its digits is divisible by 3.

Statement II: A number is divisible by 9, if the sum of its digits is not divisible by 9.

In the light of the above statements, choose the most appropriate answer from the options given below:

- A. Both Statement I and Statement II are correct
- B. Both Statement I and Statement II are incorrect
- C. Statement I is correct but Statement II is incorrect
- D. Statement I is incorrect but Statement II is correct

32. The minimum value of the function $y = f(x) = x^3 - 3x^2 + 10$ is exactly equal to

- A. 0
- B. 6
- C. 10
- D. 2

33. From the information given below, match and select the correct pair(s).

Multicollinearity problem is limited to ↓	The model in which the dependent variable Y depends on current and previous time period error, is ↓
I. Cross-section data	a. Single equation model
II. Time-series data	b. ARMA(1, 1) model
III. Panel data	c. AR(1) model
IV. All of the above	d. MA (1) model

- A. Only (I, b) is correct
- B. Both (II, d) and (I, c) are correct
- C. Only (III, b) is correct
- D. Only (IV, d) is correct

34. In the context of the "Linear Programming Problem", which is a true statement?

- A. Only objective function is linear and constraints can be non-linear
- B. Only constraint functions are linear and objective function can be non-linear
- C. All constraint functions and objective function are linear
- D. Variables are non-negative and all constraint functions are of mixed types

35. Consider a simple art auction. Rules of the game: There is an item to be auctioned. If you are interested in the item, raise hand during the auction of the item for the auctioneer to acknowledge. If no one outbids you then the item is sold to you. Does this game have a dominant strategy?

- A. Yes
- B. No
- C. Cannot say
- D. Need more information

PART-B

36. Which of the following options consists of the three economists who have developed under-consumptionist theories of aggregate demand in their work?

- A. Smith, Ricardo and Marx
- B. Smith, Ricardo and Keynes
- C. Malthus, Rosa Luxemburg and Keynes
- D. Keynes, Joan Robinson and Chamberlin

37. Fill up the blank by the following sentence.

When countries are hypothesized to converge without economic parameters being equal, (like saving rates, labour force growth, production technologies etc), then the term _____ is used in the analysis of economic growth.

- A. Unconditional convergence
- B. Conditional convergence
- C. Absolute country convergence for poor countries only
- D. Relative country convergence of resource rich countries only

38. According to Rangarajan Committee 2014, the poverty line is defined as per capita expenditure of:

- A. Rs. 52 for rural and Rs. 67 for urban areas
- B. Rs. 42 for rural and Rs. 57 for urban areas
- C. Rs. 32 for rural and Rs. 47 for urban areas
- D. Rs. 22 for rural and Rs. 37 for urban areas

39. Consider following two statements.

- (i) Each firm chooses its output quantity so as to maximize its profits given its beliefs about the other firm's choice.
- (ii) Each firm chooses its price of output so as to maximize its profits given its beliefs about the other firm's choice.

Which one of the following statements is true?

- A. Both statements (i) and (ii) are for Stackelberg model
- B. Statement (i) is for Cartel and statement (ii) is for Collusion model
- C. Statement (i) is for Cournot model and statement (ii) is for Bertrand model
- D. Statement (i) is for Bertrand model and statement (ii) is for Cournot model.

40. The Neoclassical growth model assumes that with a given state of technology:
- Increase in the use of a single factor bring increasing returns
 - Increase in the use of a single factor result in constant returns
 - Growth in GDP happens only if the labour force grows more quickly than the amount of physical capital
 - The standard of living will decrease if the labour force grows more quickly than the amount of physical capital
41. The production function $f(x, y) = \frac{(8xy^2 - x^3 - y^3 + 0.5x^{1.5}y^{1.5})}{(x^2 - xy + 2y^2)}$ exhibits,
- Constant returns to scale
 - Decreasing returns to scale
 - Increasing returns to scale
 - Can't say with above information
42. In general equilibrium models, the Numeraire price is defined as the
- Price of a commodity which makes the excess demand as equal to zero
 - Price at which the total profit is the maximum
 - Price at which the Pareto optimal condition is satisfied
 - Price of a commodity taken as constant (generally as equal to 1) and other prices are interpreted as being measured relative to it
43. Maximum utility achievable at given prices and income is called
- Utility function
 - Indirect utility function
 - Expenditure function
 - None of the above
44. Real money demand is $L = 0.8 Y - 100,000 (r + \pi^e)$, the nominal money supply is 12,000, real output is 15,000, the real interest rate (r) is 0.02, and the expected inflation rate π^e is 0.01. Calculate the price level.
- 3/4
 - 1
 - 4/3
 - 3
45. Which of the following would cause Indian rupees to depreciate against the United States of America dollar, other things being equal?
- A fall in incomes in the US
 - News which suggests that prospects for Indian firms are improving
 - A rise in interest rates in India
 - An expected rise in the value of rupees

46. Let us say as monetary policy authority, you follow monetary targeting as your monetary policy framework. Given the following data, what will be your monetary expansion (say in terms of M3, in India) target?

[Expected real GDP growth is 7 %, income elasticity of money demand is 1.5, and a tolerable inflation of 5.5%]

- A. 15%
- B. 12.5%
- C. 16%
- D. 8.5%

47. Mr. Venkat purchased a share of stock for ₹50 and sold it in one year for ₹60. Over the year, he received a dividend of ₹4. His annual return was

- A. 18.6%
- B. 23.3%
- C. 25.2%
- D. 28%

48. The difference between narrow social rate of return and wide social rate of return in education is

- A. The former includes per capita subsidy and latter does not
- B. The former does not include externalities but latter does include
- C. Both do not include cost incurred by individual
- D. None of the above

49. If the price level increases, with everything else held constant, the _____ curve shifts to the _____

- A. LM; left
- B. IS; right
- C. IS; left
- D. LM; right

50. Which of the following can be termed as Core Inflation?

- A. It represents the change in the consumer price index
- B. It represents the rate of increase in the consumer price index
- C. It represents the rate of increase in the prices of food and fuel items
- D. It represents the change in the consumer price index excluding the food and fuel items.

51. According to 'New Trade Theory' a firm acquires export competitiveness due to _____.

- A. Specialization and economies of scale
- B. Homogeneous production function
- C. No transport cost
- D. None of the above

52. Which of the following ranges explains the effectiveness of Fiscal policy – using slope of the LM curve?

- A. Intermediate range
- B. Perfectly elastic portion of the LM curve
- C. Perfectly inelastic portion of the LM curve
- D. None of the above options

53. The statement “The saving-income proportion has a direct positive effect on the actual growth rate but the actual incremental capital-output ratio has an inverse effect on the actual growth rate” is true in which economic growth model? (Source: An Essay in Dynamic Theory, The Economic Journal, 49 (193): Pg. (14-33).

- A. Domar model
- B. Harrod model
- C. Kaldor model
- D. Joan Robinson model

54. Which trade theory contends that a country that initially develops and exports a new product may eventually become an importer of it, and may no longer manufacture the product?

- A. Theory of factor endowments
- B. Theory of overlapping demands
- C. Economies of scale theory
- D. Product life cycle theory

55. _____ by the government to people may be viewed as negative taxes in tax systems.

- A. Income tax refund
- B. Fines and fees imposed
- C. Transfer payments
- D. Budget allocations

56. _____ is a fixed percentage of the value of the traded commodity.

- A. Optimum tariff
- B. Specific tariff
- C. Ad Valorem tariff
- D. A compound tariff

57. Consider the following paragraph.

The market economy can function only in a situation where the "**Y principle**" applies, i.e., where A's consumption is made contingent on A's paying the price for the good or service, while B, who does not pay, is not given the goods or services. Exchange cannot occur without property rights, and property rights require **Y**. Given such **Y**, the market can function as an auction system. The consumer must bid for the product, thereby revealing preferences to the producer, and the producer, under the pressures of competition, is guided by such signals to produce what consumers want. At least, such is the outcome with a well-functioning market.

Y in the above paragraph refers to

- A. Inclusion
- B. Exclusion
- C. Equal allocation
- D. Collection

58. Which of the following options is the source of Marx's Long Term Tendency of Falling Rate of Profit?

- A. Government control over production and lack of freedom of capitalists
- B. Rising organic composition of capital
- C. Rising global warming and consequent rising costs of environment
- D. Falling currency value in global markets and domestic inflation

59. The percentage shares of the organized manufacturing sector 2021 in the real GDP of India is in the range of _____

- A. 25% to 30%
- B. 20% to 25 %
- C. 30% to 40%
- D. 10% to 17%

60. Which of the following is India's aggregate food grain production during the financial year 2021-22?

- A. 310 million tons to 315.72 million tons
- B. 275 million tons to 286.37 million tons
- C. 200 million tons to 230.2 million tons
- D. 250 million tons to 265.36 million tons

61. Which of the following is not an international direct capital flow?

- A. An American depositing money in a bank account in Zurich, Switzerland.
- B. A German buying a U.S. Treasury bill.
- C. A Canadian purchase of a Japanese-made automobile.
- D. A Brazilian firm borrows from an Argentine bank.

62. Factor Price Equalization means that,

- A. All workers are equally productive
- B. If a country fails to trade, its skilled workers will earn no more than its unskilled workers
- C. Trade causes the return to human capital to be the same as the return to physical capital
- D. Free trade causes identical factors in different countries to be paid more nearly the same than they were in autarky

63. Countries that had both gold and silver as their medium of exchange - a system called Bimetallism - not seldom faced troubles which were supposed to be tackled by Gresham's Law. What does Gresham's Law state?

- A. Silver and gold have a fixed parity
- B. It abandoned bimetallism
- C. Metals that becomes more valuable than the official rate stop circulating
- D. No more than two metals are allowed to be used as currencies

64. Which of the following is **not** part of the real business cycle (RBC) explanation of business cycles?

- A. Output remains close to its potential level due to wage flexibility
- B. Due to fluctuations in demand for labour Aggregate supply fluctuates
- C. Labour demand might fall if technology increases faster than expected
- D. Because of fluctuations in Aggregate supply, output fluctuates

65. While developing labour theory of value to explain exploitation of labour, which of the following formulations that Marx make?

- A. Commodities need not have use value, but they should have exchange value
- B. Commodities need to have use value to have exchange value
- C. Commodities will have exchange value, no matter whether they have use value
- D. Commodities have only use value, but no exchange value

66. A Schumpeterian entrepreneur constantly innovates to revolutionize the production regimes through:

- A. Innovative creation
- B. Creative Destruction
- C. Financial restructuring
- D. Perfect competition

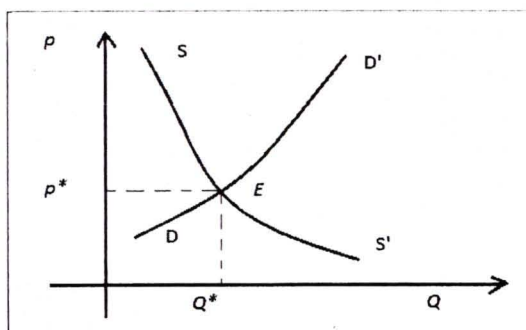
67. The inverse supply and inverse demand functions of a commodity X are given by $P_s = 8 + 4X$ and $P_d = 20 - 5X$ respectively. If price P and quantity X are determined at the equality of total demand and total supply, then the total surplus = consumer's surplus + producer's surplus is equal to approximately:

- A. 8
- B. 6
- C. 4.44
- D. 3.55

68. A firm will be inclined to create additional capital if Tobin's q is

- A. Greater than one
- B. Equals zero
- C. Less than one
- D. Equals one

69. Consider market for a good whose demand (DD') and supply (SS') schedules are shown in the graph below (for example for a Giffen good with diminishing marginal costs in production). It possesses a unique equilibrium point E characterized by (p^*, Q^*) . Then the equilibrium E possesses:



- A. Marshallian stability as well as Walrasian stability
- B. Marshallian stability but not Walrasian stability
- C. Not Marshallian stability but Walrasian stability
- D. Neither Marshallian stability nor Walrasian stability

70. Consider a consumer in a market situation, where the economy has 2-commodities. Let her demand be $x^1 = (11, 15)$ when price is $p^1 = (5, 4)$. Now, consider alternative scenarios for the same consumer showing demand x^2 at another price p^2 as specified in the scenario (two alternative scenarios are given in options A and B below). Identify the scenario for which the Weak Axiom of Revealed Preference (WARP) holds:

- A. Suppose demand is $x^2 = (10, 16)$ at price $p^2 = (10, 11)$
- B. Suppose demand is $x^2 = (12, 13)$ at price $p^2 = (4, 5)$
- C. Both of the above
- D. None of the above

KEY

Question Number	Answer	Question Number	Answer
1	B	36	C
2	B	37	A
3	D	38	C
4	C	39	C
5	C	40	D
6	C	41	A
7	A	42	D
8	C	43	B
9	D	44	C
10	C	45	A
11	A	46	C
12	B	47	D
13	A	48	B
14	B	49	A
15	A	50	D
16	A	51	A
17	D	52	B
18	B	53	B
19	C	54	D
20	A	55	C
21	B	56	C
22	C	57	B
23	B	58	B
24	A	59	D
25	C	60	A
26	B	61	C
27	B	62	D
28	B	63	C
29	B	64	C
30	B	65	B
31	C	66	B
32	B	67	A
33	D	68	A
34	C	69	D
35	A	70	B



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