

General Instructions:

- Before starting the test, please verify your **Login ID**.

In Part I:

- Total Questions in the Test are **40**.
- Total Test Duration is **2 hours (120 Minutes)**.
- There will be **NO Negative Marking**.
- You can submit your test whenever you have completed after one hour from the time of login. However, if the test time elapses the system will automatically submit your test.
- Do not close any Window directly when you are taking the test.
- There are **7 Sections** (the break up is mentioned below):

	Section Name	No. of Questions	Question Nos.	Total Time
Part I (Online Test)	Introductory Microeconomics	5	1-5	2 hours (10.30 a.m. to 12.30 p.m.)
	Introductory Macroeconomics	5	6-10	
	Intermediate Microeconomics	5	11-15	
	Intermediate Macroeconomics	5	16-20	
	Political Economy	5	21-25	
	Indian Economy	5	26-30	
	Quantitative Methods	10	31-40	
Part II (To be written on a separate booklet)	Essay Question	1		1 hour (12.30 p.m. to 1.30 p.m.)

In Part II:

- There will be an **Essay Question** to be written on a separate booklet which will be distributed at **12:30 p.m.**
- After writing the Essay, please hand over the booklet to the Room Invigilator. **DO NOT** carry the question booklet or any part thereof outside the Examination Hall.

Navigational Instructions:

- Select the correct answer for each question. Then click “**Next**” button to move to the Next Question.
- Click on “**Previous**” button to move to the Previous Question.
- You can Bookmark any number of Questions by clicking on “**Mark**” button; you can remove the Bookmark by clicking on it again.
- You can change your response for any question before submitting the test by marking the new response (Radio Button). You can clear your response for any question by using the “**Clear**” button to mark the Question unanswered.
- Every time you select an option or a particular question, following changes can be seen onscreen,
 - Questions that are Not Visited, are marked in “**WHITE**” color.
 - Questions that are Not Answered, will be marked in “**RED**” color.
 - Questions that are Answered, will be marked in “**GREEN**” color.
 - Questions that are Not Answered & Marked for Review, will be marked in “**ORANGE**” color.
 - Questions that are Answered & Marked, will be marked in “**BLUE**” color with a tag.
- After completion of your test, click “**End Test**” button to submit the test.
- “**End Test**” button will be visible ONLY after the “**Last Question**”.
- Your “**Test Summary**” will be displayed once you click on “**End Test**”.
- Keep a watch on the “**Clock**” on the top right-hand corner of the exam window for time remaining.
- Click “**Start Exam**” button below to start the test.

Section 1 - Introductory Microeconomics

No. of Questions: 5

Duration in Minutes: 120

1) Which of the following is an example of a pure public good?

- A) A restaurant
 - B) A public hospital
 - C) Indian Railways
 - D) Indian Army
-

2) A market which was controlled by a monopoly is broken up and is now a competitive market.

Which of the following, *ceteris paribus*, is true?

- A) The price is greater than before
 - B) Marginal cost is now upward sloping
 - C) Output is great than before
 - D) Price is greater than marginal cost
-

3) Which of these allocation mechanisms ensure Pareto efficiency?

- A) Rationing
 - B) First come - first served
 - C) Price discrimination
 - D) Lucky draw
-

4) Which of the following is most likely to generate a negative externality?

- A) Air pollution in Delhi
- B) Planting flowers in your garden
- C) Converting a private park into a public park
- D) Teaching a class on secularism

5) An L shaped indifference curve between two goods indicates that:

- A) One of the commodities is an economic bad
- B) The two goods are perfect complements
- C) The two goods are substitutes
- D) The consumer is irrational

Section 2 - Introductory Macroeconomics

No. of Questions: 5

Duration in Minutes: 120

6) Suppose that the inflation in your economy is 3% and you have received an income increase of 5%. How much has your real income increased by?

- A) 8%
- B) 5%
- C) 2%
- D) Can't say

7) How is crowding out usually understood?

- A) A lower interest rate leads to higher private investment
- B) A higher government expenditure leads to higher private investment
- C) A higher government expenditure leads to lower private investment
- D) A higher interest rate reads to lower private investment

8) Suppose a 4-sector economy with $C=C_0+c(Y-tY)$, $I=I_0$, $G=G_0$, $X=X_0$, and $M=M_0+mY$

Where C, I, G, X, and M refer to consumption, investment, government expenditure, exports, and imports respectively;

C_0 , I_0 , X_0 , and M_0 refer to exogenous consumption, investment, government expenditure, exports, and imports respectively;

c and m are the marginal propensities to consume and import, and t refers to the tax rate.

What is the multiplier for this economy?

- A) $1/(1-c-t-m)$
- B) $1/(1-c+ct+m)$
- C) $1/(1-c-ct-m)$
- D) $1/(1-c-ct+m)$

9) Compute the GDP of an economy where the

GNP = 34,000 (Rs. crores) and the NFIA (net factor income from abroad) = -3,000 (Rs. crores).

- A) 31,000 (Rs. crores)
- B) 34,000 (Rs. crores)
- C) Not enough information is given to be able to calculate answer
- D) 37,000 (Rs. crores)

10) What is the value of the multiplier in an economy with an MPC of 0.25?

- A) 4
- B) 1.33
- C) 0.75
- D) 1

Section 3 - Intermediate Microeconomics

No. of Questions: 5

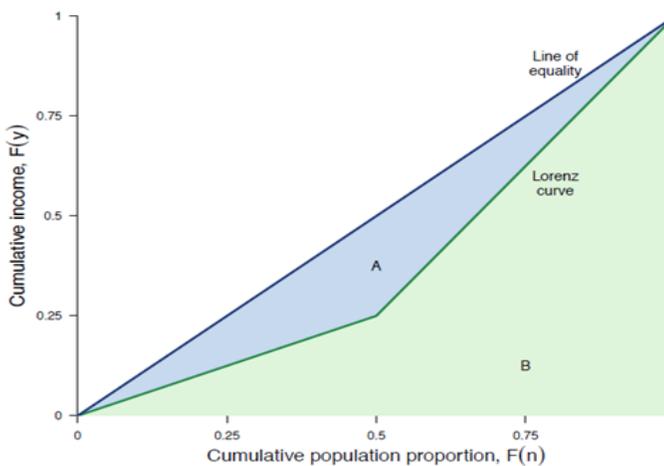
Duration in Minutes: 120

11) Following is the utility function $u(x_A, x_B)$ representing the preferences of an individual over two goods - A and B. Find the utility maximising level of consumption of good A if the price of good A is 2, the price of good B is 1 and the total budget is 20.

$$u(x_A, x_B) = x_A^2 - 10x_A + x_B$$

- A) 3
- B) 4
- C) 6
- D) 10

12) For a society with the following Lorenz curve what would be the Gini coefficient if A is the blue shaded area, B is the green shaded area, and $A=B/3$?



- A) 0.25
- B) 0.5
- C) 0.67
- D) 1.25

13) If the government increases GST on sports equipment and the prices of sports equipment **do not** change as a result, then

- A) The incidence of the tax increase has fallen entirely on the producer
- B) The incidence of the tax increase has fallen entirely on the consumer
- C) The incidence of the tax increase is shared between producer and consumer
- D) There is no increase in actual tax paid as there is no price increase

14) An expected utility maximiser has a von Neumann - Morgenstern utility function $u(x) = \sqrt{x}$, where x is the amount of money. The person is presented with a lottery where she may win Rs 10,000 with 5% probability. What is the maximum price the person will be willing to pay for the lottery?

- A) Rs. 500
- B) Rs. 250
- C) Rs. 50
- D) Rs. 25

15) Select the best answer

		B	
		L	R
A	U	3,2	3,3
	D	6,2	3,5

- A) U,L is Nash equilibrium and is Pareto efficient
- B) U,L is Nash equilibrium but is not Pareto efficient
- C) D,R is Nash equilibrium and is Pareto efficient
- D) D,R is Nash equilibrium and is not Pareto efficient

Section 4 - Intermediate Macroeconomics

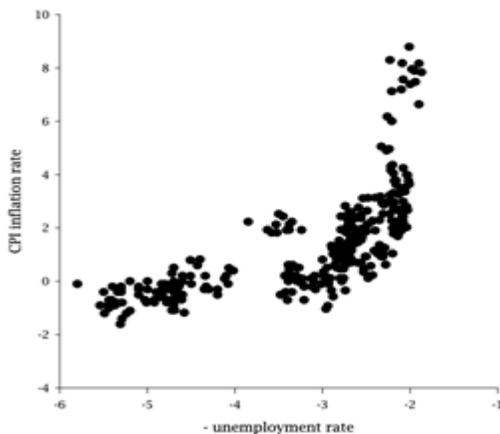
No. of Questions: 5

Duration in Minutes: 120

16) Here is an interesting picture of Japan and its (inverted) Phillips curve (see below). In general, a Phillips curve shows that:



Figure 2: Japan's Inflation Rate and (Minus) Unemployment Rate January 1980 to August 2005



- A) There is a permanent trade-off between inflation and unemployment
- B) There is a temporary trade-off between inflation and unemployment
- C) A country's Phillips curve looks like a map of the country
- D) There is no case for macroeconomic policy

17) India is experiencing high inflation. Which of the following is not likely to be a cause?

- A) Fiscal deficits are high
- B) There is labor market slack
- C) Interest rates are low
- D) Oil prices are high

18) "We investigate whether U.S. government spending multipliers are higher during periods of economic slack or when interest rates are near the zero lower bound. We estimate multipliers that are below unity irrespective of the amount of slack in the economy. These results are robust to two leading identification schemes, two different estimation methodologies, and many alternative specifications. In contrast, the results are more mixed for the zero lower bound state, with a few specifications implying multipliers as high as 1.5.

The above is an abstract from Valerie Ramey and Sarah Rubairy: Government Spending Multipliers in Good Times and in Bad: Evidence from US Historical Data, *Journal of Political Economy*, 2018, vol. 126, issue 2, 850 - 901

Which of the following statements is true from the above?

- A) There is no evidence of crowding out of private investment
- B) When interest rates are low, fiscal policy is most effective
- C) When there is labor market slack, multipliers are large
- D) Monetary policy is more effective than fiscal policy

19) Which of the following is true about the open economy multiplier?

- A) It is greater than one
- B) It is lower than the closed economy multiplier
- C) It is negative
- D) It does not depend on imports

20) If the RBI increases the repo rate, it is usually doing so to:

- A) Reduce inflation
- B) Increase output
- C) Increase inflation
- D) Decrease output

Section 5 - Political Economy

No. of Questions: 5

Duration in Minutes: 120

21) Economists need to understand caste, religion and gender in India when studying educational outcomes because

- A) There is a caste, religion and gender penalty in educational outcomes.
 - B) Educational outcomes are determined only on the basis of merit
 - C) Educational outcomes are determined by teachers
 - D) Individual characteristics matter more than group based characteristics
-

22) An economic system is capitalist if

- A) Ownership of land and wealth are sufficiently concentrated
 - B) Advanced technology is extensively used in production
 - C) Private owners of capital goods hire wage labour to produce for profit
 - D) The bulk of production is non-agricultural
-

23) In India

- A) The smallest proportion of workers are in the agricultural sector but this sector has the highest contribution to GDP
- B) The highest proportion of workers are in the agricultural sector but this sector has the lowest contribution to GDP
- C) The highest proportion of workers are in the agricultural sector and this sector has the highest contribution to GDP
- D) The smallest proportion of workers are in the agricultural sector and this sector has the lowest contribution to GDP

24) Which of the following statements is true?

- A) Inequality of asset ownership is greater than inequality of income which is greater than inequality of consumption
 - B) Inequality of consumption is greater than inequality of income which is greater than inequality of asset ownership
 - C) Inequality of asset ownership is greater than inequality of consumption which is greater than inequality of income
 - D) Inequality of consumption is greater than inequality of asset ownership which is greater than inequality of income
-

25) Economic growth in India over the last few decades can be described as

- A) High growth has been associated with high levels of employment growth
- B) Low growth has been associated with low levels of employment growth
- C) High growth has been associated with low levels of employment growth
- D) Low growth has been associated with high levels of employment growth

Section 6 - Indian Economy

No. of Questions: 5

Duration in Minutes: 120

26) The GDP per capita in India in 2017 is roughly

- A) \$2000
 - B) \$1000
 - C) \$200
 - D) \$20000
-

27) Which of the following is true about India's labor force?

- A) India's labor force is 1.3 billion
 - B) Indian women and men participate equally in the labor force
 - C) India's informal labor force is larger than its formal labor force
 - D) India's labor force in the metros is larger than the labor force outside the metros
-

28) In 1991, the Indian government began the program of liberalization. Which of these is an example of a policy of liberalization?

- A) De-licensing of industries
 - B) NREGA
 - C) Minimum Support Price
 - D) Jan Dhan Yojana
-

29) In 1965-66 the Indian economy experienced the largest fall in growth rate that it has experienced after independence. The primary reason for this fall in growth rates was

- A) Wars with China and Pakistan
- B) Withdrawal of PL 480 aid by USA
- C) Failure of monsoons
- D) Crash in prices of agricultural goods in the world economy

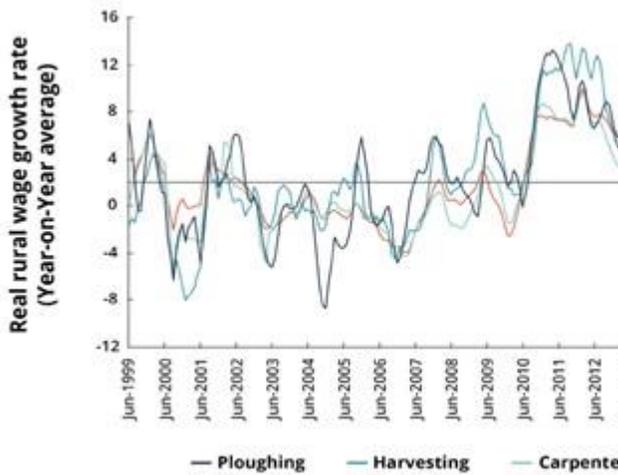
30) Which of the following industries is still most closely shaped by decisions made during the planning period?

- A) The banking industry
- B) The airline industry
- C) The communications industry
- D) The automobile industry

Section 7 - Quantitative Methods

No. of Questions: 10
Duration in Minutes: 120

31) Figure (X) shows the growth rate for real wages for men in selected occupations in rural India. Which of the following statement is correct according to Figure X?

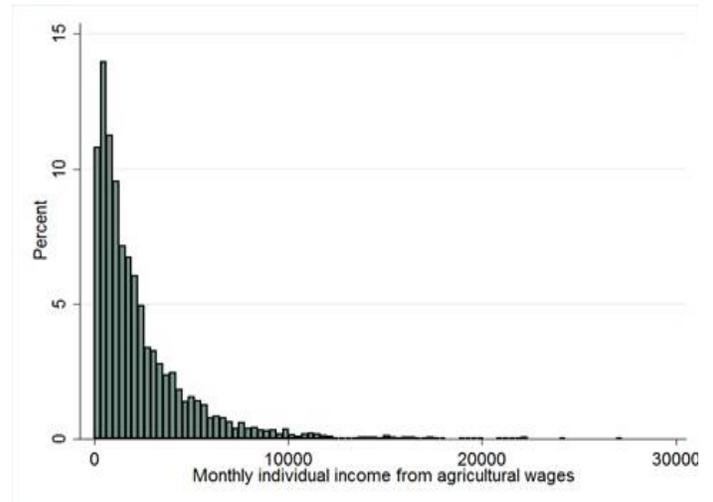


State of Working India 2018, Azim Premji University

- A) Real wages in 2013 were lower than in 2011
- B) Real wages in 2013 were higher than in 2011
- C) There is not enough information to compare wages
- D) Only the real wage for ploughing was lower in 2013 than in 2011

Directions for Questions 32-33:

Figure (Y) is a histogram of the monthly income from agricultural wages.



Source: Indian Human Development Survey 2011-12.

32) Choose the correct statement based on Figure Y.

- A) The mean of the distribution is greater than the median
- B) The median of the distribution is greater than the mean
- C) We cannot compare the mean and the median of the distribution
- D) The mean for this distribution does not exist

33) Imagine that every person represented in Figure (Y) received an additional agricultural income of Rs 1000 per month.

- A) The mean, median and variance of the distribution would increase
- B) The mean and the median would increase, but the variance would remain the same
- C) The mean would increase but the median and the variance would remain the same
- D) All three - mean, median and variance would remain unchanged

34) Suppose Y_i is a random variable. Then $E(Y_i)$ is

- A) A random variable with finite non-zero variance
- B) A random variable with infinite variance
- C) A constant with zero variance
- D) A constant with finite non-zero variance

Directions for Questions 35-38:

Table (Z) below shows the results of regressions on a country-level dataset. The variable *Ruggedness* is an index of the ruggedness of the terrain of a country. I^{Africa} is a dummy variable that is 1 if the country is in Africa.

Dependent Variable: Log Real GDP per Person, 2000						
	(1)	(2)	(3)	(4)	(5)	(6)
Ruggedness	-0.203 (0.093)**	-0.196 (0.094)**	-0.203 (0.094)**	-0.243 (0.092)**	-0.193 (0.081)**	-0.231 (0.077)**
Ruggedness $\times I^{Africa}$	0.393 (0.144)**	0.404 (0.146)**	0.406 (0.138)**	0.414 (0.157)**	0.302 (0.130)**	0.321 (0.127)**
I^{Africa}	-1.948 (0.220)**	-2.014 (0.222)**	-1.707 (0.325)**	-2.066 (0.324)**	-1.615 (0.295)**	-1.562 (0.415)**
Diamonds		0.017 (0.012)				0.028 (0.010)**
Diamonds $\times I^{Africa}$		-0.014 (0.012)				-0.026 (0.011)**
% Fertile soil			0.000 (0.003)			-0.002 (0.003)
% Fertile soil $\times I^{Africa}$			-0.008 (0.006)			-0.009 (0.007)
% Tropical climate				-0.007 (0.002)**		-0.009 (0.002)**
% Tropical climate $\times I^{Africa}$				0.004 (0.004)		0.006 (0.004)
Distance to coast					-0.657 (0.177)**	-1.039 (0.193)**
Distance to coast $\times I^{Africa}$					-0.291 (0.360)	-0.194 (0.386)
Constant	9.223 (0.143)**	9.204 (0.148)**	9.221 (0.200)**	9.514 (0.164)**	9.388 (0.134)**	9.959 (0.195)**
Observations	170	170	170	170	170	170
R ²	0.357	0.367	0.363	0.405	0.421	0.537

Coefficients are reported with robust standard errors in brackets. **, *, and * indicate significance at the 1%, 5%, and 10% levels.

Source: Nunn, N., & Puga, D. (2012). Ruggedness: The blessing of bad geography in Africa. *Review of Economics and Statistics*, 94(1), 20-36.

35) From Table (Z), the point estimates in regression 5 indicate that one unit increase in the distance to coast in an African country is associated with an average decrease in log(GDP per person) by

- A) 0.657
- B) 0.291
- C) 0.948
- D) 0.366

36) From Table (Z), the value of the constant in regression 1 (9.223) indicates

- A) The log(GDP per person) of a non-African country with ruggedness index 0
- B) The average log(GDP per person) of all non-African countries in the sample
- C) The log(GDP per person) of the country with the lowest ruggedness
- D) None of the above

37) Choose the statement that best summarises the results presented in Table (Z)

- A) Diamonds, soil fertility, tropical climate and distance to coast are not statistically significant determinant of the per capita incomes of African countries, whereas all of these except soil fertility are statistically significant determinants of per capita income for non-African countries
- B) African countries with more rugged terrain tend to have higher per capita incomes than those with less ruggedness, whereas in non-African countries the relationship is the opposite
- C) Ruggedness increases per capita GDP in African countries and decreases it in non-African countries
- D) African countries are poorer on average and hence ruggedness increases per capita income in those countries

38) Using Table (Z), a researcher proposes to use annual Rainfall in a district as an Instrumental Variable for district level Agricultural Wage. Which of the following statements is correct?

- A) It is a valid instrument because it is correlated with *Agricultural Wage*
- B) It is a valid instrument because it is exogenous
- C) It is a valid instrument because it is exogenous and it is correlated with *Agricultural Wage*
- D) The information given is not sufficient to determine whether it is a valid instrument or not

39) In statistical inference, it is customary to judge any large sample t-statistic larger than 2 (in absolute value) as

- A) Useless evidence as it does not give us information about the likelihood of the null hypothesis being true
 - B) Evidence in favour of the null hypothesis used to construct it
 - C) Evidence against the null hypothesis used to construct it as the statistic taking such a large value is a likely event
 - D) Evidence against the null hypothesis used to construct it as the statistic taking such a large value is an unlikely event
-

40) I have panel data on n workers over t periods. I want to run a Mincerian regression to find the effect of education on wages while controlling for individual time-invariant unobservable characteristics. The following three methods are proposed to run the regression.

(A) Calculate the mean-deviation of wage and education for each individual by subtracting their individual mean wages and mean educations from their actual wage and education. Then run an OLS with the de-meanned variables.

(B) For each individual, subtract the wage (and education) of period 1 from that of period 2, period 2 from period 3 and so on. Then run an OLS of the differenced variables.

(C) Add $n-1$ dummy variables, one for each individual (except one) and then run an OLS

The correct methods is/are-

- A) Only A
- B) A and B but not C
- C) A, B and C
- D) Only C