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ECONOMICS

(Major)

Paper : 5.1

(Elements of Public Finance)

Full Marks : 60

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Answer the following questions :   1×7=7

    (a) Define public goods.

    (b) Give one example of non-tax revenue.

    (c) What do you mean by capital receipts?

    (d) Mention one important source of revenue receipt.

    (e) Name one method of redemption of public debt.

    (f) State Wagner's law.

    (g) Mention one source of internal debt.

(*Turn Over*)

2. Answer the following questions :   2×4=8

    (a) Distinguish between private finance and public finance.

    (b) Explain two causes of growth in public expenditure in modern time.

    (c) What is meant by sinking fund?

    (d) What are the essential characteristics of a tax?

3. Answer any *three* from the following questions :   5×3=15

    (a) Explain the effects of public expenditure on economic stability of a country.

    (b) Discuss the relevance of public finance in modern-day context.

    (c) Briefly discuss the important sources of public borrowing.

    (d) Explain briefly the advantages and disadvantages of indirect tax.

    (e) Explain briefly the role of public debt in a developing country.

4. Answer any *three* from the following questions :   10×3=30

    (a) Critically analyze the principle of maximum social advantage.   10

    (b) Analyze the characteristics of a good tax system.   10

    (c) Write a note on the sources and classification of public revenue.   10

    (d) Bring out the various cannons of public expenditure with suitable explanation.   10

    (e) Discuss the role of public expenditure with special reference to developing countries.   10

    (f) What is meant by debt trap? Distinguish between money burden and real burden as far as public debt is concerned. Critically analyze the burden of public debt.   2+3+5=10

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ECONOMICS

(Major)

Paper : 5.2

Full Marks : 60

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

(For Arts Stream)

(Basic Statistics for Economics)

1. *(a)* Answer the following questions : $1\times4=4$

    (i) Find the median of the natural numbers 1 to 11.

    (ii) If $\bar{x} = 40$ and $\sigma_x = 10$, find the coefficient of variation.

    (iii) Give an example of discrete random variable.

    (iv) A bag contains 3 white and 4 red balls. Find the probability of drawing a red ball.

(*Turn Over*)

(b) Indicate whether the following statements are *True* or *False* : 1×3=3

    (i) Correlation always signifies a cause and effect relationship between the variables.

    (ii) Both the regression coefficients cannot exceed 1.

    (iii) A normal curve is completely defined by the mean and the standard deviation.

2. Answer the following questions : 2×4=8

(a) Define mathematical expectation of a random variable. Give one example.

(b) Prove that the arithmetic mean of two regression coefficients is greater than the correlation coefficient.

(c) If $Q_1 = 142$ and $Q_3 - Q_1 = 18$, find the median (it is assumed that the distribution is symmetrical about median).

(d) Given $b_{yx} = -1 \cdot 4$ and $b_{xy} = -0 \cdot 5$, calculate r_{xy}.

3. Answer the following questions (any *three*) : 5×3=15

(a) A random variable X has the following probability distribution :

X	-2	-1	0	1	2
$P(X = x)$	$\frac{1}{12}$	$\frac{1}{6}$	$\frac{1}{4}$	$\frac{1}{6}$	$\frac{1}{12}$

Compute $E(X)$ and $V(X)$.

(b) The arithmetic mean and standard deviation of a series of 20 items were calculated by a student as 20 cm and 5 cm respectively. But while calculating them, an item 13 was misread as 30. Find the correct AM and SD.

(c) Prove the Karl Pearson's correlation coefficient r lies between −1 and +1, i.e. $-1 \le r \le 1$.

(d) State the properties of Poisson distribution. Mention one practical situation where such distributions can be used.

(e) Explain the difference between correlation and regression analysis.

4. Answer the following questions (any *three*) :

$$10 \times 3 = 30$$

(a) Which measure of central tendency is the best and why? Compute the arithmetic mean from the following data by step deviation method :

Marks	:	0–10	10–20	20–30	30–40
No. of Students	:	5	10	25	30

Marks	:	40–50	50–60
No. of Students	:	20	10

Also locate approximate value of the mode graphically. 3+4+3

(b) Explain the term 'regression'. Briefly explain the principle of least squares used for the estimation of linear regression.

The correlation coefficient between two variables X and Y is $r = 0 \cdot 6$. If $\sigma_x = 1 \cdot 50$, $\sigma_y = 2 \cdot 00$, $\bar{x} = 10$ and $\bar{y} = 20$, find the regression line of Y on X. 2+5+3

(c) Explain the distinctive features of binomial and normal distribution. If the probability of a defective bolt is 0·2, find *(i)* the mean and *(ii)* the standard deviation of defective bolts in a total of 900 bolts. 8+2

(d) *(i)* Define classical or *a priori* probability.

(ii) Let A and B be two possible outcomes of an experiment and suppose

$$P(A) = 0 \cdot 4, \quad P(A \cup B) = 0 \cdot 7,$$
$$P(B) = p \text{ and } P(A \cap B) = 0 \cdot 2.$$

Find the value of p if

(1) A and B are mutually exclusive

(2) A and B are independent.

(iii) An urn contains 6 white and 8 red balls. A second urn contains 8 white and 12 red balls. One ball is drawn at random and put into the second urn without noticing its colour. A ball is then drawn at random from the second urn. What is the probability that it is white?

$$1 + (2+2) + 5$$

(e) Define Spearman's rank correlation coefficient. Calculate Spearman's rank correlation coefficient between advertisement cost and sales from the following data :

Advertisement Cost ('000 ₹)	:	39	65	62	90	82
Sales (₹ in Lakh)	:	47	53	58	86	62
Advertisement Cost ('000 ₹)	:	75	25	98	36	78
Sales (₹ in Lakh)	:	68	60	91	51	84

Comment on the following :

"The coefficient of correlation $r = 0 \cdot 8$ implies that 80% of the variation is explained." 2+6+2

(f) (i) If the two lines of regression are

$$4x - 5y + 30 = 0$$
$$20x - 9y - 107 = 0$$

then which of these is the line of regression of x on y? 6

(ii) Distinguish between absolute dispersion and relative dispersion. 4

(For Science Stream)

(Elementary Econometrics)

5. Answer the following as directed : 1×7=7

(a) Define standard error.

(b) What is a null hypothesis?

(c) Name the type of error rejecting a true hypothesis.

(d) Mention one test that is used for testing large sample.

(e) The overall goodness of fit of a linear regression model is measured by _____.

(Fill in the blank)

(f) Name the problem that arises in the estimation of a linear regression model when the assumption of $E(u_i, u_j) = 0$; $i \neq j$ is violated.

(g) What do you mean by level of significance?

6. Answer any *four* of the following : 2×4=8

(a) Comment on the following :

The mean of a binomial distribution is 15 and its standard deviation is 5.

(b) State the conditions under which a binomial distribution tends to Poisson distribution.

(c) Mention the properties of a good point estimator.

(d) What is the critical value of z at 1 percent and 5 percent level of significance for a right-tailed normal test?

(e) Mention two properties of normal distribution.

(f) Find the binomial distribution whose mean is 6 and variance is 4.

7. Answer any *three* of the following : 5×3=15

(a) What is an estimator? Explain with illustration, the concept of (i) point estimator and (ii) interval estimator.

1+2+2

(b) Distinguish between one-tailed test and two-tailed test. 5

(c) Prove that for a Poisson distribution mean and variance are same and is equal to its parameter. 5

(d) Explain the conditions that should be satisfied for applying 'chi-square test'. 5

(e) The incidence of occupational diseases in an industry is such that the workers have a 25% chance of suffering from it. What is the probability that out of 6 workers 4 or more will contact diseases? 5

8. Answer any *three* of the following : 10×3=30

(a) In an industry, 200 workers, employed for a specific job, were classified according to their performance and training received. The data is summarized in the following table. Is there any association between the performance and training received by the workers? [Given that chi-square

value at 1% and 5% level of significance with 1 degree of freedom is 6·64 and 3·84 respectively] 10

	Performance		Total
	Good	Not Good	
Trained	100	50	150
Untrained	20	30	50
Total	120	80	200

(b) Prove that ordinary least squares estimators are Best Linear Unbiased Estimators (BLUE). 10

(c) What is the justification for introducing the random disturbance term in a linear regression model? What are the various assumptions made for disturbance term in the model? 5+5

(d) A random sample of 20 daily workers of state A was found to have average daily earning of ₹ 44 with standard deviation 30. Another sample of 20 daily workers from state B was found to earn an average of ₹ 30 per day with standard deviation 20. Test whether the workers in state A are earning more than those in state B. [$t_{0.05} = 1·645$ for 38 d.f.]. 10

(e) The income distribution of officers of a certain company was found to follow normal distribution. The average income of the officers was ₹ 15,000. The standard deviation of the income of the officers was ₹ 5,000. If there were 242 officers drawing salary above ₹ 18,500, how many officers were there in the company? [The area under standard normal curve between 0 and 0·7 is 0·2580] 10

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3 (Sem–5) ECO M 2 (Arts/Sc)

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ECONOMICS

(Major)

Paper : 5.3

(Introduction to Environmental Economics)

Full Marks : 60

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Answer the following questions :   1×7=7

   (a) Define environmental economics.

   (b) What do you mean by rivalry?

   (c) Is environment a pure public good?

   (d) What is free-rider problem?

   (e) What is the most significant greenhouse gas in quantitative terms?

   (f) "Pollution is a negative externality." Write whether the statement is true or false.

   (g) Give one example of environmental problems of global concern.

(Turn Over)

2. Answer the following questions :   2×4=8

   (a)   Explain the term 'negative externality'.

   (b)   What is tradable permit?

   (c)   Mention the scope of environmental economics.

   (d)   Give any two effects of environmental degradation.

3. Answer any *three* of the following questions :
    5×3=15

   (a)   Distinguish between public goods and private goods.

   (b)   Discuss environmental Kuznets' curve.

   (c)   "Pollution tax is an efficient means of pollution control." Do you agree? Give reasons.

   (d)   What is transboundary pollution? Explain.

   (e)   What do you mean by ozone layer depletion? Explain.

4. Answer any *three* of the following questions :
    10×3=30

   (a)   Explain the interlinkages between the economy and the environment.   10

   (b)   What is tragedy of commons? Explain the concept with suitable example.
    3+7=10

   (c)   What is market failure in the context of environmental goods? How can the problem of market failure be resolved?
    3+7=10

   (d)   Explain the different tools for pollution control. Discuss their relative merits and demerits.
    6+4=10

   (e)   Explain climate change as a global environmental issue. What are the main causes of climate change?
    5+5=10

   (f)   Explain the case of positive externality. How can it be internalized?   5+5=1

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ECONOMICS

(Major)

Paper : 5·4

(**International Trade : Theory and Policy**)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks
for the questions

1. Answer the following as directed :   1×7=7

    (a) According to the theory of comparative advantage, which of the following is not a reason why countries trade?

      (i) Comparative advantage

      (ii) Costs are higher in one country than in another

      (iii) Prices are lower in one country than in another

      (iv) The productivity of labour differs across countries and industries
               (Choose the correct answer)

(*Turn Over*)

(b) Countries gain from trade, because

    (i) trade makes firms more competitive reducing their market power

    (ii) all firms take advantage of cheap labour

    (iii) world output can rise when each country specialises in what it does relatively best

    (iv) output per worker in each firm increases

        (Choose the correct answer)

(c) What is known by a situation of 'autarky'?

(d) Define the term 'Reciprocal Demand'.

(e) What is trade policy?

(f) In the Heckscher-Ohlin model, a country will import the good that uses its ____ factor intensively in its production.

        (Fill in the blank)

(g) What is 'retaliation' in the terminology of protection?

(Continued)

2. Answer the following questions :   2×4=8

(a) In case of free trade, what happens to the relative price of a country's export within the country and relative domestic price of its imports?

(b) What is meant by technical progress in reference to a country's economic growth?

(c) What is a capital-intensive industry?

(d) Does the relative size of a country affect its gains from trade?

3. Answer any *three* of the following questions :
    5×3=15

(a) Explain the statement :

    "Free trade is superior to no trade."

(b) Explain Leontief paradox.

(c) Explain the concept :

    Factor abundance vs Factor intensity

(d) Explain with the help of offer curves how the gains from trade are distributed.

(e) Explain what happens to the validity of Heckscher-Ohlin theory under factor intensity reversal.

(Turn Over)

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   (i) trade makes firms more competitive reducing their market power

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   Factor abundance vs Factor intensity

(d) Explain with the help of offer curves how the gains from trade are distributed.

(e) Explain what happens to the validity of Heckscher-Ohlin theory under factor intensity reversal.

4. Answer any *three* of the following questions :

<div align="right">10×3=30</div>

(a) Using Ricardian model, explain how both countries can gain from trade by comparing no-trade equilibrium with that of the free-trade equilibrium.

(b) Critically discuss the factors which determine the terms of trade of a country.

(c) Discuss trade as an engine of growth.

(d) Discuss the effects of tariff under partial equilibrium analysis.

(e) Review the Infant Industry Argument of protection. Excluding tariff, discuss the other protectionist devices.

(f) Explain how the welfare of a country is ensured with the help of an optimum tariff structure.

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ECONOMICS

(Major)

Paper : 5·6

(**Development Policy and the Indian Economy**)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Answer the following questions : $1 \times 7 = 7$

   (a) In which sector is industry included?

   (b) What do you mean by death rate?

   (c) What was the density of population in India according to 2011 Census?

   (d) Define absolute poverty.

   (e) Write one main cause of industrial unemployment in India.

   (f) What is food security?

   (g) Define microenterprises.

(*Turn Over*)

2. Answer the following questions :   2×4=8

   (a) What is sex ratio? What was the sex ratio of India according to 2011 Census?

   (b) Point out two important causes of disguised unemployment in India.

   (c) Write two main objectives of land reforms in India.

   (d) Mention two important roles of small enterprises in the economic development of India.

3. Answer any *three* of the following questions :
                                                   5×3=15

   (a) Discuss the causes of slow growth of per capita income in India during the plan period.

   (b) Suggest five measures for reducing rural unemployment in India.

   (c) Explain five main problems that hamper the requisite growth of agricultural sector in India.

   (d) Discuss the main components of food security system in India.

   (e) Explain the main aims of the Industrial Policy of 1991 introduced by the Government of India.

(Continued)

4. Answer any *three* of the following questions :   10×3=30

   (a) Explain the basic features of Indian economy.

   (b) Account for the causes of rapid growth of population in India. What measures do you suggest to check it?   5+5

   (c) What are the causes of inequalities in income in India? Write briefly the various measures adopted by the Government of India for reducing inequalities in income.   5+5

   (d) Analyze the positive and negative impacts of Green Revolution in Indian agriculture.   5+5

   (e) Make an appraisal of the sectoral contribution of national income in India.

   (f) Discuss the role of industrialization in the economic development of a developing economy like India.

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