



D-2654

First Year B. Com. (Honours) (Sem. II) Examination

March / April - 2016

Mathematics & Statistics : Paper - II

Time : Hours]

[Total Marks :

Instructions :

(1)

नीचे दृष्टावित \leftarrow निशानीवाणी विगतो उत्तरवडी पर अवश्य कभववी. Fillup strictly the details of \leftarrow signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
\leftarrow F. Y. B. COM. (HONOURS) (SEM. 2)	<input type="text"/>
Name of the Subject :	<input type="text"/>
\leftarrow MATHEMATICS & STATISTICS - 2	<input type="text"/>
\leftarrow Subject Code No. : <input type="text" value="2"/> <input type="text" value="6"/> <input type="text" value="5"/> <input type="text" value="4"/> \leftarrow Section No. (1, 2,.....) : <input type="text" value="Nil"/>	<input type="text"/>
	Student's Signature

- (2) All the questions are **compulsory**.
- (3) Figures to the **right** indicate full marks of the questions.
- (4) Simple calculator can be used.
- (4) Statistical tables and graph papers would be supplied on request.
- 1 (a) Explain the following terms : 3
- (i) Linear constraint
- (ii) Feasible solution
- (iii) Basic solution.
- (b) Two types A and B of hens are kept in a poultry farm. Type A costs Rs. 20 and type B costs Rs. 30 each. Type A lays 4 eggs per week and type B lays 6 eggs per week. At the most 40 hens can be kept in the poultry. Not more than Rs. 1050 is spent on hens. How many hens of each type should be purchased in order to get maximum eggs ? Use graphical method. 6
- 2 (a) Use Simplex method to solve the following LPP. 6
- Maximize $Z = 4x_1 + 10x_2$
subject to the constraints :
- $2x_1 + x_2 \leq 50,$
 $2x_1 + 5x_2 \leq 100,$
 $2x_1 + 3x_2 \leq 90$
 $x_1, x_2 \geq 0$
- (b) Solve the assignment problem to get maximum value 4
of the objective function :

Origin	Destination			
	D ₁	D ₂	D ₃	D ₄
O ₁	4	5	12	10
O ₂	6	8	9	10
O ₃	6	7	7	8
O ₄	5	7	9	9

(c) Define : Primal problem and Dual problem. 3

3 (a) Find an initial basic feasible solution (IBFS) by Vogel's method. 4

Origins	Destinations				Supply
	1	2	3	4	
1	21	16	25	13	11
2	17	18	14	23	13
3	32	27	18	41	19
Demand	6	10	12	15	

(b) An amount is invested in SIP would be three times the deposited amount after 8 years. Find the rate of compound interest. Also find the rate of simple interest. 4

(c) Gurucharan opens a recurring account for 15 years period. He deposits Rs. 2,500 in the recurring account in the beginning of every year. If the rate of interest is 12.5%, what amount will he receive at the end of 15 years period from this account ? 4

4 (a) Explain : Future value, Present value, Effective rate of interest. 4

(b) A person sets up a sinking fund in order to collect Rs. 50, 00, 000 after 19 years for his child education in Sydney University, Australia. How much amount should be set aside into an account paying 5% p.a. compound half yearly. 4

(c) A man borrowed some money and returned it in 3 equal quarterly installments of Rs. 4630.50 each. What sum did he borrow if the rate of interest was 20% p.a. compounded quarterly ? Find also the interest charged. 4