TRIBHUVAN UNIVERSITY
FACULTY OF MANAGEMENT
Office of the Dean
Sept. - Oct. 2018

Full Marks: 60
Pass Marks: 30
Time: 3 Hrs.

BBA / Second Semester / ECO 202: Macro Economics

Candidates are required to answer all the questions in their own words as far as practicable.

Group "A"

Brief Answer Questions: ***[10 × 1 = 10]***

1. What is MEC schedule?
2. Differentiate between real flow and money flow in circular flow of income and expenditure.
3. Final product method may create problem of double counting. Why?
4. Derive the consumption function in three sector economy if tax is the function of income.
5. Business cycles are self-reinforcing. Why?
6. What is meant by automatic stabilizer?
7. Write the determinants of demand for foreign currency.
8. Derive LM equation mathematically.
9. Define stagflation.
10. Identify the factors that cause shifts in IS curve.

Group "B"

Short Answer Questions: ***[6 × 5 = 30]***

11. How the business environment is affected by macroeconomic variables and policies?
12. State the classical theory of employment. What are its criticisms? ***[2+3]***
13. Explain the effects of inflation on balance of payment, government revenue and FDI.
14. Describe the indicators and targets of monetary policy.
15. Explain the relationship between average propensity to consume and marginal propensity to consume.
16. What is market failure? Explain the sources of market failure.

Group "C"

Comprehensive Answer Questions: ***[2 × 10 = 20]***

17. Study the following situation and analyze the issues:

    Saving is a virtue or a vice. There is debate among economists about the role of saving in macroeconomy. In some situation, increasing saving increases capital formation rate that increases the income and employment. But in another situation increasing saving decreases aggregate demand as a result the income and employment decrease.

Classical economists argued that individual savings are transferred automatically into investment via interest rate flexibility that ultimately increases income in economy. To Keynesians, saving depends upon income and increased savings in the economy are possible only when the total income of the economy increases. But the increased saving means less expenditure and hence less of effective demand that leads to reduction in income in the economy. They call this situation as the 'paradox of thrift'.

Nepal is suffering from capital deficiency in economic development. Saving is the basis of capital formation. About 55 percent Nepali households receive remittances. According to Economic Survey (2016/17), Nepal received Rs 450 billion remittance which is about 30 percent of GDP. According to the World Bank data 2016, the share of gross domestic savings in GDP is 3.8 percent in Nepal while its average value in developed country is 22.2 percent. Due to lack of capital, mega-infrastructures are hindering in Nepal.

a. Saving is a virtue or a vice? Justify with suitable example.
b. Is the 'paradox of thrift' relevant for Nepal? Give your arguments.
c. What types of fiscal measures would you suggest to overcome the problems of low saving and capital deficiency faced by Nepalese economy? *[4+3+3]*

18. Consider the following hypothetical data and calculate NNP at market price from income method and expenditure method. Also calculate the disposable income. *[(4+3)+3]*

Description	Rs. in billion
Exports	75
Change in inventory	50
Corporate income taxes	78
Dividend	278
Employer's contribution to social security	100
Net capital formation	405
Government consumption expenditure	600
Government investment expenditure	125
Gross capital formation	450
Imports	700
Indirect taxes	315
Mixed income	134
Interest paid by Firms	114
NFIA	990
Personal direct tax	125
Private consumption expenditure	2550
Proprietor's income	124
Rental income	182
Retained earnings	52

Social security contribution	225
Subsidy	27
Transfer Payments	15
Wages and salaries	1705
Interest paid by consumers	28

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(Make up)

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BBA / Second Semester / MTH 202: Business Mathematics - II

Candidates are required to answer all the questions in their own words as far as practicable.

Group "A"

1. ***Brief Answer Questions:*** *[10 × 1 = 10]*

   i. Find f_{xy}: $f(x,y) = x^3 e^{3x+2}$

   ii Integrate: $\int \frac{X-2}{X+3} dx$

   iii. Evaluate: $\begin{vmatrix} 2 & 1 & 5 \\ 4 & 3 & 6 \\ 5 & 2 & 3 \end{vmatrix}$

   iv. Solve the following differential equation: $\frac{dy}{dt} = 2ty$

   v. Find the area bounded by the curve $y = 3x^2$, the axis and the ordinates at $x = 1$ and $x = 3$.

   vi. Solve the difference equation: $y_t = 2y_{t-1} + 5$, if $y_0 = 4$

   vii. Given, $A = \begin{bmatrix} 4 & 7 \\ 1 & 3 \end{bmatrix}$ and , $B = \begin{bmatrix} 2 & 5 \\ 6 & 1 \end{bmatrix}$, find $(A + B)^T$.

   viii. Given the demand function $Q = 12 - 3p + 2y$ where $P = 4$, $y = 4$, find the price elasticity of demand.

   ix. Find $A \times B$ when $A = \begin{bmatrix} 3 & -1 \\ 2 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 3 \\ 1 & 2 \end{bmatrix}$.

   x. Consider the supply and demand equations under the equilibrium condition $Q_d = -3p + 20$ and $Q_s = 2p - 15$ respectively. Find the equilibrium price and quantity.

Group "B"

Short Answer Questions: *[10 × 4 = 40]*

2. The demand function for a newly produced mobile phone for Nepal Telecom is $P = 20 - 2x - 3x^2$. Find the consumer's surplus if demand is 2.

3. Solve the following system of linear equation by using determinant or matrix method.

   $X + 2y - z = 3$
   $2X - 3y + 2z = 8$
   $4X + y - z = 10$

4. If the demand and supply function in a competitive market are $Q_d = 26 - 0.4P$ and $Q_s = -4 + 0.6P$ and the rate of adjustment of price when the market is out of equilibrium is $\frac{dP}{dt} = 0.32(Q_d - Q_s)$. Derive and solve the following differential equation to get a function for P in terms of t given that price is 25 in time period 0. Comment on the stability of this market.

5. Assume a simple national income model

   $y_t = c_t + I_t$, $c_t = 0.45y_{t-1} + 400$, $I_t = 700$

   Solve for y_t when $y_0 = 2300$. Is the system stable?

6. Solve the Linear Programming Problem from the following conditions:

   Minimize $Z = 21x + 50y$

   Subject to

   $2x + 5y \geq 12$

   $3x + 7y \geq 17$

   $x, y \geq 0$

7. CG Dish washing machine manufacturing company has developed service contract for the Dish Washing machine it sells to customers. The rate of maintenance is estimated to be $\frac{dc}{dt} = 10 + 6t$, where t is the number of years the contract remains in force. Determine the amount the company must charge per year for 3 years contract. In how many years the total cost will be Rs. 400.

8. Two duopolists, firm X and Y, have the reaction functions

   $P_{xt} = 500 + 0.65\ P_{y(t-1)}$

   $P_{yt} = 500 + 0.65\ P_{x(t-1)}$

   If the assumptions of the Bertrand model hold, derive a difference equation for P_{xt} and calculate what P_{xt} will be in time period 8 if firm X starts off in time period 0 by setting a price of 2500.

9. For the utility function $U(x, y) = x^{\frac{1}{2}}y^{\frac{1}{3}}$, find the marginal utilities when x = 25 and y = 8. Hence estimate the change in utility when x and y both increases by 1 unit.

10. Solve the following differential equation: $\frac{dy}{dt} + \frac{2y}{t} = \frac{y^3}{t^2}$

11. If $A = \begin{bmatrix} 1 & 2 & 0 \\ 3 & 1 & 1 \\ 2 & 1 & 3 \end{bmatrix}$, find $A^2 - 4A + 3I$.

Group "C"

Comprehensive Answer Questions: *[1 × 10 = 10]*

12. The total cost and demand functions for two goods are given by the equations $TC = 10 - 6x + 5y$, $P_x = 6 - 2x$, $P_y = 25 - 0.1y$, where x is the number of the first good, y is the number of the second good.

    a. Write down the equations for total revenue and total profit.

    b. Determine the number of units of each good which should be sold to maximize revenue. Calculate the maximum revenue.

    c. Determine the number of units of each good which should be bought and sold to maximize profit. Calculate the maximum profit.

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BBA / Second Semester / ENG 202: English - II

Candidates are required to give their answers in their own words as far as practicable.

Attempt ALL questions

1. Write four levels of interacting with the text to *Metaphors*. *[12]*

2. Answer any <u>five</u> of the following questions *[5 × 5 = 25]*

   (a) Is *Sorry, Wrong Number* a realistic play? Is it possible for a caller to accidentally overhear a conversation between the two other parties? Is it possible for Mrs. Stevenson to never fully grasp that she is the intended victim?

   (b) What might be the intercultural problems according to the essay *Girlhood among Ghost?*

   (c) Compare the parent-child relationship in Theodore Roethke's *My Papa's Waltz* and Tagore's *Chandalika?*

   (d) How do *The Buddha* and *The Loneliness of the Long Distance Runner* incorporate the idea of eternity?

   (e) How is hypothesis demystified? Discuss with reference to the contexts of *We Are all Scientists* and *A Most Forgiving Ape*?

   (f) Discuss *Ballad of the Landlord* as an indictment of color discrimination in America.

3. Write a short report on improving the profit, service, etc., of a local restaurant that you have visited. *[5]*

4. Write a bad news letter (for any of the situations you like). Follow the criteria for writing a bad news letter and the writing process techniques. *[5]*

5. You have accomplished Master's in Business Administration (MBA) from Cambridge University, USA, four years ago. You have also got the experience in the related field. Nepal Multicultural Association Board has announced a vacancy for the post of Senior Management Officer. Write a job application letter for the vacant position. Include a suitable resume as well. *[5]*

6. Read the following passage and answer the questions asked below. *[4 × 2 = 8]*

   Dr. Aditya Sharma, a consultant business researcher primarily works in the organizational management sector, and has conducted varieties of research including case study, action research, business surveys, and so on about varieties of organizational issues such as auditing, business administration, conflict management, marketing, advertising, international relationships, etc. Dr. Sharma is asked by one of the multinational companies based on Kathmandu, Nepal to conduct a comprehensive study and submit the report about the business problems seen in the changing context of Nepal. Nepal's Regional Office of the company has investigated from the preliminary study that the company is bearing 12% loss every year for the recent three years. The new executive director of the company has decided to conduct an intensive study about the potential causes and problems of the company's loss, and has appointed Dr. Sharma as the chief researcher who is expected to lead a task force.

Mr. Sharma has recently started the preliminary activities and procedures of the research. The research is problem based, and immediate solutions are expected. The TOR has mentioned that the report must include practice related and policy related recommendations. The research team of Mr. Sharma has organized a meeting, and conceptualized the design and procedures of the research. They have prepared the time framework, and have planned about the tools and procedures for data collection.

Questions:

a. Is Mr. Sharma asked to prepare analytical or investigative report? Describe in brief.
b. What would be the highly efficient tools for gathering information for this report?
c. How can data be analyzed and interpreted?
d. What can be the statement of problem of Mr. Sharma's report?

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Group "A"

Brief Answer Questions: *[10 × 1 = 10]*

1. What are the sources of market failure?
2. What are the components of corporate profit?
3. Write any four assumptions of Say's law of market.
4. What determines the value of multiplier?
5. How rate of inflation is computed by GDP deflator?
6. What are the propositions of psychological law of consumption?
7. Write down any four characteristics of prosperity phase of business cycles.
8. Prepare a list of factors that shift IS curve.
9. Compute the value of acceleration coefficient when initial income (Y_{t-1}) = Rs 4000, new income (Y_t) = Rs 8000 and change in induced inducement = Rs 12000.
10. State the sources of deficit financing.

Group "B"

Short Answer Questions: *[6 × 5 = 30]*

11. Define GDP at market price. What are its components according to product method?
12. Explain the concept of Paradox of thrift.
13. Describe the relationship between macroeconomics and business environment.
14. Suppose in an economy, the following data is given

    $C=100 + b(Y - T)$, $T = 50 + tY$

    $I = 50$, $G = 50$, $X = 10$, $M = 5 + 0.1Y$

    The marginal propensity to consume (b) = 0.8 and Proportional income tax rate (t) = 0.25

    a) Find the equilibrium level of national income

    b) Find foreign trade multiplier
15. Explain the depression phase of trade cycle. How can it be controlled by fiscal policy?
16. Define privatization. What are its advantages?

Group "C"

Comprehensive Answer Questions: *[2 × 10 = 20]*

17. Consider the following data and calculate GNP_{MP} by income and expenditure methods. Also compute PI, and PDI.

Items / Description	Rs in Billion
Capital consumption allowance	1136
Imports	1252
Government expenditure	1700
Net private domestic investment	488
Payment to rest of the world	322
Exports	998
Receipts from rest of the world	302
Operating surplus	2496
Transfer payments	5000
Personal consumption expenditure	5350
Social insurance payments	1133
Compensation of employees	4184
Indirect taxes	704
Subsidy	100

18. Study the following case and the answer the questions:

Monetary policy is one of the most important policies to manage aggregate demand. Like other policies, the primary objective of monetary policy is to attain the macroeconomic goal or objectives such as stability, growth, full employment, favorable balance of payment and so on. Before liberalization, Nepal Rastra Bank followed direct monetary instruments such as interest rate, margin rate, statutory reserve requirements (SLR), and so on. However, after economic liberalization, indirect instruments such as cash reserve ratio, open market operation and bank rate have been used. These instruments first affect the aggregate demand thereby affecting real sector variables such as price level, income, employment, output, etc. But in case of Nepal, monetary policy has not been effective to achieve its goals or objectives because price level is not explained by money supply alone. Inflation and rising food prices seems to be a popular issue at the moment. Nepal is a country with the problem of inflation. The impact of inflation occurs on different stakeholders such as poor people on fixed incomes and suffers from the risks of hyper inflation. An effective monetary policy can control inflation.

(a) What types of monetary instruments would you suggest to achieve high rate of economic growth and employment in reference to developing countries like Nepal?

(b) If you are appointed as a chief of monetary authority what would you suggest for controlling inflation?

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Group "A"

[10 × 1 = 10]

1. Brief Answer Questions:

i. Integrate $\frac{x+4}{x-2}$ with respect to x.

ii. Write down the order and degree of differential equation $\frac{d^2x}{dx^2} - 5\frac{dy}{dx} + 6y = 0$.

iii. Solve the following differential equation: $8x\frac{dy}{dx} = 4$.

iv. Solve: $Y_t = Y_{t-1} + 0.178$

v. Find the first order partial derivatives of the function $f(x, y) = x^2 + 6xy + y^2$.

vi. The input-output coefficient of an economy of two industries is $\begin{bmatrix} 0.8 & 0.2 \\ 0.9 & 0.7 \end{bmatrix}$. Test whether the system is viable as per Hawkins-Simon condition.

vii. The demand law for a commodity is $p = 20 - 2x - x^2$. Find the consumer's surplus when the demand is 3.

viii. If $A = \begin{bmatrix} 1 & 2 \\ 3 & 1 \end{bmatrix}$ find $A^2 - 2A - 5I$ where I is the identity matrix of order 2.

ix. Find the total cost function if the marginal cost function $(MC) = 3x^2 - 8x$.

x. Evaluate $\begin{vmatrix} 0 & 1 & 3 \\ 2 & 3 & 5 \\ 4 & 2 & 1 \end{vmatrix}$.

Group "B"

[10 × 4 = 40]

Short Answer Questions:

2. If the marginal revenue function is $MR = \frac{ab}{(x+b)^2} - c$, where a, b and c are constants. Show that $p = \frac{a}{x+b} - c$ is the demand law.

3. Solve the following system of linear equations by using determinant or matrix method.

$$x - y + z = 3$$
$$2x - 3y - z = 13$$
$$3x + 6y - 4z = 20$$

4. Solve the following differential equation: $(1 - t^2)\frac{dy}{dx} + ty = ty^2$

5. In a duopoly where the assumptions of the Bertrand method hold, the two firms' reaction functions are:

$$P_t^X = 950 + 0.8P_{t-1}^Y \text{ and}$$
$$P_t^Y = 950 + 0.8P_{t-1}^X$$

If firm X sets an initial price of Rs 5,000, what will its price be twenty time periods later?

7. Integrate the followings: **(any two)**

a) $\int \frac{x-3}{x-6} dx$

b) $\int (3x^2 + 11)\sqrt{(x^3 + 11x)}\, dx$

c) $\int_0^a x\sqrt{a^2 - x^2}\, dx$

d) $\int_0^1 (3x^2 - 6)\, dx$

8. The demand function for a commodity is $P = Q^2 - 3Q + 5$. Find the consumer's surplus if the market price is 3.

9. Determine whether the given vectors $-2\vec{a} + 3\vec{b} + 5\vec{c}$, $\vec{a} + 2\vec{b} + 3\vec{c}$, and $7\vec{a} - \vec{c}$ are co-planar or non-coplanar.

10. Solve the following system of linear equations by using Crammer's rule:

$$x - 2y + 3z = 4$$
$$2x - y + z = -1$$
$$4x + y + 2z = 4$$

11. A committee of 3 members is to be made from 5 mathematicians, 4 engineers and 3 economists. Find the probability that the committee consists of

a. One member from each field.

b. 2 Economists and an engineer.

Group "C"

Comprehensive Answer Questions: *[1 × 10 = 10]*

12. Demand function of a company is $P = 20 - Q$ and the cost function $C = Q^2 + 8Q + 2$.

a. Determine the optimum output for the maximum profit.

b. Determine the maximum profit, price and revenue.

c. Determine the marginal cost and marginal revenue at which the profit is maximum.

d. Does the relation $\frac{d}{dQ}(AC) = \frac{MC - AC}{Q}$ hold true?

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