# Undergraduate Examination (NEP) 2024
## Semester-III
## Subject AECC / MIL-2
### AECC BENG02 Course 2

প্রশ্নের মান দক্ষিণ প্রান্তে উল্লিখিত

**Time : 2 Hours** **Full Marks: 40**

**যে-কোনো দুটি প্রশ্নের উত্তর দাও:** ২×১০ =২০

১। হাসির গল্প হিসেবে 'কুম্ভীর-বিভ্রাট' ও 'ডমরুধরের হীরকলাভ' গল্প দুটির সার্থকতা বিচার করো।

২। ছকভাঙা বাঙালি ছেলে হিসেবে শঙ্কর চরিত্রটি আলোচনা করো।

৩। পুরাণের গল্পকথাকে ছোটোদের উপযোগী করে তুলেছেন উপেন্দ্রকিশোর। পাঠ্যগল্প অবলম্বনে বিষয়টি ব্যাখ্যা করো।

৪। 'নন্টে ফন্টে' কমিকসের সংলাপের গুরুত্ব বিচার করো।

**৫। যে-কোনো চারটি বিষয়ে টীকা লেখো:** ৪×৫=২০

ক) ডমরুধর

খ) বুনিপ

গ) ডিয়েগো আলভারেজ

ঘ) উপেন্দ্রকিশোরের ফটোগ্রাফিচর্চা

ঙ) 'সন্দেশ' পত্রিকার সম্পাদক উপেন্দ্রকিশোর

চ) নারায়ণ দেবনাথের কমিক্সে 'বাস্তব'।

**Four Year Undergraduate Programme, Examination, 2024**

**SUBJECT : HINDI**

**COURSE : AECC-3 (MIL Hindi)**

**(हिन्दी भाषा और संप्रेषण)**

**( Questions are of equal value or as indicated in the margin )**

**Time : 2** hours **Full Marks: 40**

1. निम्नलिखित प्रश्नों में से किन्हीं **दो** के उत्तर दीजिए : 2x12=24

(क) भाषा क्या है ? भाषा की विविध परिभाषा लिखिए।

(ख) भाषा के विविध रूप की चर्चा कीजिए।

(ग) संधि किसे कहते हैं ? संधि के प्रमुख प्रकारों को परिभाषित करते हुए उदाहरण सहित समझाइए।

2. निम्नलिखित प्रश्नों में से किन्हीं **दो** के संक्षिप्त उत्तर दीजिए : 2x8=16

(क) बलाघात किसे कहते हैं ? उदाहरण देकर स्पष्ट कीजिए।

(ख) स्वर वर्ण किसे कहते हैं ? इसके कितने प्रकार हैं ? उदाहरण के साथ लिखिए।

(ग) अल्पप्राण और महाप्राण व्यंजन किसे कहते हैं ? उदाहरण देकर स्पष्ट कीजिए।

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**B.A. (Honours) Examination 2024**
**Semester—III (CBCS)**
**Economics**
**Course CC-6**
**(Intermediate Macroeconomics-I)**

**Time: 3 hours** **Full Marks: 60**

**Questions are of value as indicated in the margin**

*Answer any four questions*

1. State the assumptions of income determination in Simple Keynesian Model. How is income determined in this model? 5+10=15

2. Derive autonomous government expenditure multiplier in IS-LM model. What is the difference between this multiplier and that of Simple Keynesian Model? 10+5=15

3. (a) What is meant by Regressive Expectations by Keynes?
(b) How did Keynes define critical rate of interest?
(c) Derive the individual asset holder's money demand function.
(d) How do you derive the aggregate money demand function from individual money demand functions? 2+4+4+5=15

4 (a) In Tobin's model of portfolio balance, how is the technical budget constraint derived for an individual asset holder?
(b) Discuss the equilibrium portfolio balance for the risk averters. 6+9=15

5. Discuss in detail the effectiveness of fiscal policy in Classical macroeconomic model. 15

6. Using the IS-LM framework, discuss in detail the impacts of expansionary monetary and government expenditure policies under a usual situation of excess capacity and unemployment. 7.5+7.5=15

7. Discuss in detail the derivation of an underemployment equilibrium in Complete Keynesian Model. 15

8. Write short notes on the following (any two): 7.5+7.5=15
(a) Say's law of markets
(b) Effective demand problem
(c) Liquidity trap and policy implications
(d) Quantity theory of money

**B.A. (Honours) Examination, 2024**

**Semester-III**

**Economics**

**Course: CC-05**

**(Intermediate Microeconomics I)**

**Time: 3 Hours** **Full marks: 60**

Questions are of value as indicated in the margin.

Answer **Question no 1** and **any three** from the rest of the following questions

1. (i) Given $U = (x + 2)(y + 1)$ and $P_x = 5$, $P_y = 6$ and $B = 130$ being prices per unit of good x, good y and income, respectively.

a. Write the Lagrangian function assuming $\lambda$ as the Lagrangian multiplier.

b. Find the optimum values of $x^*$, $y^*$ , and $\lambda^*$.

c. Check the second-order sufficient condition for maximum.

d. Does the answer in (b) give any comparative static information?

(ii) "An inflextion point must be a stationary point."- True or False? Explain your answer.

(1+4+4+2)+4

2. A firm has the following total-cost and demand function as follows:

$C = \frac{1}{3}Q^3 - 7Q^2 + 111Q + 50$

$Q = 100 - P$

(i) Does the total-cost function satisfy the coefficient restrictions in the short run context?

(ii) Write out the total-revenue function R in terms of Q.

(iii) Formulate the total-profit function $\pi$ in terms of Q.

(iv) Find the profit-maximizing level of output, $Q^*$.

(v) What is the maximum profit?

4+2+5+4

3. (i) Show that diminishing marginal utility is neither necessary nor sufficient condition for regular strictly quasi concavity of the utility function or convexity of indifference curve.

(ii) Show that demand function is homogenous of degree zero in prices and income.

(iii) Show that the sum of own price elasticity, income elasticity ad cross price elasticity is zero.

6+5+4

4. (i) Show that demand for goods do not change if there is monotonic transformation of utility function.

(ii) Derive and interpret the Slutsky equation for a consumer with utility function $U = f(x, y)$.

6+9

5. (i) Explain the Walrasian and Marshalian stability conditions with the help of demand and supply curves.

(ii) Give an example of equilibrium which is stable according to Walrasian condition but unstable according to Marshallian condition.

(iii) (a) Verify that a cubic function $z = aX^3 + bX^2 + cX + d$ is in general neither quasiconcave nor quasiconvex.

(b) Is it possible to impose restrictions on the parameters such that the function becomes quasiconcave and quasiconvex simultaneously for$X \geq 0$?Explain.

4+4+(4+3)

6. (i) Proof that for the CES production function, the sum of output elasticities is one.

(ii) Show that for Cobb-Douglas production function the expansion path is a straight line through the origin.

(iii) Proof that for CES production function elastic of substitution is constant.

4+4+7

7. (i) State and explain the Weak Axiom of Revealed Preference.

(ii) Consider the following dataset of consumer in a world with only two goods.

when prices $p_1 = 1$ and $p_2 = 2$ the chosen bundle $(x_1, x_2)$ was (10, 1);

when $(p_1, p_2)$ = (2, 1), $(x_1, x_2)$ = (5, 5).

Check whether the above date set satisfies the Weak Axiom of Revealed Preference.

4+11

# B.A. (Honours in Economics) Examination, 2024

**Semester–III** **[CBCS: For back candidates]**

## Course: CC-7

**(Statistical Methods for Economics)**

**Time: Three Hours** **Full Marks: 60**

*Questions are of value as indicated in the margin*

Answer ***any four*** questions

1. Consider the following age distribution of a group of individuals:

| Age group | 10 - 19 | 20 - 29 | 30 - 49 | 50 - 79 | 80 - 89 |
|---|---|---|---|---|---|
| No. of persons | 15 | 20 | 30 | 25 | 10 |

(i) Compute the class boundaries, class widths, frequency densities and less-than type cumulative frequencies for the age groups

(ii) Calculate the arithmetic mean of age of the individuals. 8+7

2 (a). Under what circumstances the median is preferred to the A.M. as a measure of central tendency? Give an example when you cannot measure A.M. for a grouped frequency distribution.

(b) Construct a simple frequency distribution with the help of tally marks from the following raw data. Hence find the median value of the observations.

7, 4, 3, 5, 6, 3, 3, 2, 4, 3, 4, 3, 3, 4, 4,
3, 2, 2, 4, 3, 5, 4, 3, 4, 3, 4, 3, 1, 2, 4

(c) A variable has values $x_i$ with corresponding frequencies $f_i$ $(i = 1,2, \dots n)$. If $y_i = 100 + 5x_i$ then show that $\bar{x} = (\bar{y} - 100)/5$ 5+5+5

3.(a) What do you mean by a 'measure of dispersion'? Discuss different alternative measures of dispersion along with their merits and demerits. In this context, point out the difference between absolute measures and relative measures of dispersion.

(b) Out of 400 observations, 100 observations have a value 1 and the rest have a value 0. Find the mean and standard deviation of all 400 observations taken together. 10+5

4.(a) Prove that standard deviation is not affected by change in origin, but is affected by change in scale.

(b) For a variable with values $x_i$ and corresponding frequencies $f_i$ $(i = 1,2, \dots n)$, define the r-th raw moment and the r-th central moment.

(c) The first three moments about the value 3 for a frequency distribution are 2, 10 and 30 respectively. Obtain the first three moments about zero. 6+4+5

5. (a) What is scatter diagram for bivariate data? Explain its use with example.

(b) Define correlation coefficient between two variables $x$ *and* $y$. Calculate the correlation coefficient for the following data

| x | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| y | 7 | 6 | 5 | 4 | 3 |

(c) If the regression equation of $x$ *on* $y$ is $20x - 9y - 107 = 0$ and that of $y$ *on* $x$ *is* $4x - 5y + 33 = 0$. Find the mean values of $x$ and $y$ and the also the value of the correlation coefficient between $x$ *and* $y$. 5+5+5

*[.....Continued in page 2]*

6. (a) Four digits 1,2,3 and 4 are arranged in random order to form a four digit number. What is the probability that 3 and 4 will appear as neighbours in the order mentioned.

(b) When two events are said to be (i) mutually exclusive and (ii) mutually independent?

(c) Prove that two events (none of which are impossible events) are *not* independent if they are mutually exclusive and they are *not* mutually exclusive if they are independent. 5+4+6

7. (a) Suppose $x$ is the number of heads appeared when two coins are tossed. Find $E(x) and\ Var(x)$.

(b) A continuous random variable $\boldsymbol{x}$ has the following probability density function:

$f(x) = cx^2$, for $0 \leq x \leq 1$

$= 0$ otherwise

Find the value of '$c$' and hence find the cumulative distribution function of $\boldsymbol{x}$. 8+7

8. (a) An experiment succeeds twice as often as it fails. What is the probability that there will be at least one success in six trials?

(b) For a random variable $x$ following Poisson distribution, it is known that $P(x = 0) = P(x = 1)$. What is the probability that $x$ will be greater than zero? [given $e^{-1} = 0.368$]

(c) An unbiased coin is tossed 400 times. What is the probability that the number of heads appeared will be between 180 and 220? [Given that the area under the standard normal curve between 0 and 2 is 0.477].

5+5+5

**B.A. (Honours) Examination-2024**

**Semester-III (CBCS)**

**Political Science**

**Generic Elective Course: GEC-III**

**(Indian Government and Politics-I)**

**Time: 3 Hours** **Full Marks: 60**

Questions are of value as indicated in the margin

**Answer any four questions**

**(15x4=60)**

1) Discuss in detail the legislative relations between the Union and the states in India. (15)

2) Discuss in detail the development of the Constitution of India with special emphasis on the Round Table Conferences. (15)

3) Discuss in brief the salient features of Fundamental Rights as enshrined in the Constitution of India. (15)

4) State the liberal-intellectual and the Gandhian principles of the Directive Principles of State Policy. What are the new Directive Principles of State Policy? (10+5)

5) Write a detailed note on the philosophy and features of the Indian Constitution. (15)

6) Discuss the administrative relations between the Union and the states in India. (15)

**B.A. (Honours) Examination, 2024**

**Semester-III**

**Economics**

**Course: MJEC05**

**(Intermediate Microeconomics I)**

**Time: 3 Hours** **Full marks: 80**

Questions are of value as indicated in the margin.

Answer **Question no 1** and **any three** from the rest of the following questions

1. (i) Given $U = (x + 2)(y + 1)$ and $P_x = 5$, $P_y = 6$ and $B = 130$ being prices per unit of good x, good y and income, respectively.

a. Write the Lagrangian function assuming $\lambda$ as the Lagrangian multiplier.

b. Find the optimum values of $x^*$, $y^*$, and $\lambda^*$.

c. Check the second-order sufficient condition for maximum.

d. Does the answer in (b) give any comparative static information?

(ii) "An inflextion point must be a stationary point."- True or False? Explain your answer.

(2+5+5+3)+5

2. A firm has the following total-cost and demand functions as follows:

$C = \frac{1}{3}Q^3 - 7Q^2 + 111Q + 50$

$Q = 100 - P$

(i) Does the total-cost function satisfy the coefficient restrictions in the short run context?

(ii) Write out the total-revenue function R in terms of Q.

(iii) Formulate the total-profit function $\pi$ in terms of Q.

(iv) Find the profit-maximizing level of output, $Q^*$.

(v) What is the maximum profit?

5+3+7+5

3. (i) Show that diminishing marginal utility is neither necessary nor sufficient condition for regular strictly quasi concavity of the utility function or convexity of indifference curve.

(ii) Show that demand function is homogenous of degree zero in prices and income.

(iii) Show that the sum of own price elasticity, income elasticity ad cross price elasticity is zero.

8+7+5

4. (i) Show that demand for goods do not change if there is monotonic transformation of utility function.

(ii) Derive and interpret the Slutsky equation for a consumer with utility function $U = f(x, y)$.

8+12

5. (i) Explain the Walrasian and Marshalian stability conditions with the help of demand and supply curves.

(ii) Give an example of equilibrium which is stable according to Walrasian condition but unstable according to Marshallian condition.

(iii) (a) Verify that a cubic function $z = aX^3 + bX^2 + cX + d$ is in general neither quasiconcave nor quasiconvex.

(b) Is it possible to impose restrictions on the parameters such that the function becomes quasiconcave and quasiconvex simultaneously for$X \geq 0$?Explain.

5+5+(5+5)

6. (i) Proof that for the CES production function, the sum of output elasticities is one.

(ii) Show that for Cobb-Douglas production function the expansion path is a straight line through the origin.

(iii) Proof that for CES production function elastic of substitution is constant.

6+6+8

7. (i) State and explain the Weak Axiom of Revealed Preference.

(ii) Consider the following dataset of consumer in a world with only two goods.

when prices $p_1 = 1$ and $p_2 = 2$ the chosen bundle $(x_1, x_2)$ was (10, 1);

when $(p_1, p_2)$ = (2, 1), $(x_1, x_2)$ = (5, 5).

Check whether the above date set satisfies the Weak Axiom of Revealed Preference.

6+14

**B.A. (Honours) Examination 2024**
**Semester—III (NEP)**
**Economics**
**Course MJEC06**
**(Intermediate Macroeconomics-I)**

**Time: 3 hours** **Full Marks: 80**

**Questions are of value as indicated in the margin**

*Answer any four questions*

1. State the assumptions of income determination in Simple Keynesian Model. How is income determined in this model?

6+14=20

2. Derive autonomous government expenditure multiplier in IS-LM model. What is the difference between this multiplier and that of Simple Keynesian Model?

13+7=20

3. (a) What is meant by Regressive Expectations by Keynes?
(b) How did Keynes define critical rate of interest?
(c) Derive the individual asset holder's money demand function.
(d) How do you derive the aggregate money demand function from individual money demand functions?

3+5+5+7=20

4 (a) In Tobin's model of portfolio balance, how is the technical budget constraint derived for an individual asset holder?
(b) Discuss the equilibrium portfolio balance for the risk averters. 8+12=20

5. Discuss in detail the effectiveness of fiscal policy in Classical macroeconomic model.

20

6. Using the IS-LM framework, discuss in detail the impacts of expansionary monetary and government expenditure policies under a usual situation of excess capacity and unemployment.

10+10=20

7. Discuss in detail the derivation of an underemployment equilibrium in Complete Keynesian Model.

20

8. Write short notes on the following (any two): 10+10=20
(a) Say's law of markets
(b) Effective demand problem
(c) Liquidity trap and policy implications
(d) Quantity theory of money

BA Examination, 2024
SEM-III
Subject: MNEC02( Economics)
(For Regular Candidates)
Introductory Macroeconomics

Time: 3 hours

Full Marks: 80

*Questions are of value as indicated in the margin*

**Answer any four of the following**

1. (a) Distinguish between nominal GDP and real GDP.
   (b) Briefly discuss the different methods of measuring GDP. 5+15=20

2. (a) Depict the model of a three sector circular flow of income.
   (b) Is GDP a true measure of economic well being of a nation? Discuss. 10+10=20

3. (a) Discuss the Keynesian consumption function, Explain its key components and the relationship between consumption and income. Illustrate your answer with a diagram.
   (b) What factors other than income are likely to be most important in determining consumption?
   (c) If the consumption function is given by C = 200 + 0.8 Y; Calculate the MPC and APC when income(Y) is 500. (4+3+3)+6+4=20

4. Discuss the classical model of output and employment determination. 20

5. (a) What do you understand by NNP at factor cost? How do you derive NNP at factor cost from GDP at market prices?
   (b) Define personal disposable income (PDI). How do you derive PDI from national income?
   (c) How is equilibrium income determined in closed economy with government? 6+4+10=20

6. (a) Define money and its different functions.
   (b) What are the different types of money? Discuss.
   (c) "Bad money drives out good money" Explain. 6+6+8=20

7. (a) Define $M_1, M_2, M_3, M_4$.
   (b) Write a short note on Fisher's Quantity theory of money(QTM).
   (c) Explain the process of credit creation by the commercial banks. 4+8+8=20

8. (a) What is inflation? Discuss different types of inflation.
   (b) Discuss the causes behind inflation.
   (c) Discuss the consequences of inflation. 4+8+8=20

**Four Year Undergraduate Programme- Economics (Major)-2024**

**Semester-III**

**MNPS02 (NEP)**

**Subject: Political Science**

**(Political Theory-II)**

**Full Marks: 80**

**Time: 3 Hours**

Questions are of value as indicated in the margin

**Answer any four questions** **(20x4=80)**

1) Write a note on the historical evolution of Liberal Democracy. What are the key challenges faced by liberal democracies in balancing individual freedoms with collective security? (10+10)

2) How do societal norms and institutional structures shape the relationship between gender and power in politics? (20)

3) "While Dialectical Materialism represents the philosophical basis of Marxism, Historical Materialism represents its scientific or empirical basis"- Examine. (20)

4) Write a note in detail on the Civil Disobedience Movement launched by Mahatma Gandhi in 1930. (20)

5) Define social justice. Discuss the Gandhi-Ambedkar debate in detail. (5+15)

6) Examine Rabindranath Tagore's ideas on Nationalism and Internationalism. (20)

**B.A. (Honours) Examination, 2024**

**Semester-III**

**Economics**

**Course: SECC-I** (CBCS)

**(Mathematical Methods III)**

**Time: 2 Hours** **Full marks: 25**

Questions are of value as indicated in the margin.

Answer **any five** from the of the following questions

1. Evaluate:

$$\int \frac{dx}{\sqrt{3x+2}}$$

5

2. A function $f(x)$ is defined as $f(x) = 4 - x$. Find the area under $f(x)$ between the values $x = 0$ *and* $x = 4$

5

3. Five letters A,B,C,D and E are arranged in a row randomly. What is the probability that 'CE' will appear side by side in that order?

5

4. Person A can solve a problem with probability 0.6 and person B can solve the same problem with probability 0.5. If both of them try independently, what is the probability that the problem will be solved?

5

5. An urn contains 6 white and 4 red balls. Two balls are drawn at random from it without replacement. Find the probability that (i) both are white (ii) both are of same colour.

2.5+2.5

6. Solve the following equations and ensure that the initial conditions are satisfied

   $\dot{y} + 3y = 12$ and $y(0) = 10$.

   $\dot{y} = 5$ and $y(0) = 1$.

3+2

7. Find the steady-state points and determine their stability properties for the following $\dot{y} = 3y^2 - 2y$ .

5

8. Suppose the energy consumption 'E' grows at the rate of 2% and was equal to 2 units of time $t_0$. Solve for energy consumption as function of time.

5

Ref. No.VB/EXAM/REG/02/UGNEP/Programme Economics/Sem-III/36674/2024

Date-13-12-2024

**B.A. (Honours) Examination, 2024**

**Semester-III**

**Economics**

**Course: SEEC03**

**(Mathematical Methods)**

**Time: 3 Hours** **Full marks: 60**

Questions are of value as indicated in the margin.

Answer **any four** from the following questions

1. a. Proof that the solution to any linear differential equation is equal to sum of the homogenous solution and any particular solution to the complete differential equation.

   b. State and proof the condition of convergence for a first order linear autonomous differential equation.

   c. Solve the differential equation

   $\dot{y} = 6y - 6$

   and ensure that it satisfies the initial condition $y(0) = 3$ at $t = 0$.

   5+5+5

2. a. Write a short note on a Walrasian Price Adjustment model.

   b. If you invest Rs. 1000/- today in a savings account that pays interest at the rate of 0.5% per month, how much money will be in the savings account after 120 months?

   10+5

3. a. Solve the following equations and ensure that the initial conditions are satisfied

   (i) $\dot{y} + 3y = 12$ and $y(0) = 10$.

   (ii) $\dot{y} = 5$ and $y(0) = 1$.

   b. Suppose the energy consumption $E$ grows at the rate of 2% and was equal to 2 units of time $t_0$. Solve for energy consumption as function of time.

   c. Solve the difference equation

   $$y_{t+1} = 0.5y_t + 10$$

   with initial condition $y_0 = 1$

   (3+3)+4+5

4. a. Suppose that a fish population grows according to the function

$$g(y) = 2y(1 - {}^{y}/_{2})$$

where y is the stock of fish. The fish population is subjected to a constant level of harvesting by fishing industry. If the harvest is a constant equal to ${}^{3}/_{4}$, will the fish population reach a steady-state (positive) size, in which case the harvest is sustainable activity, or will the fish population decline and become extinct?

b. Construct the phase diagram and conduct a qualitative analysis of the difference equation

$y_{t+1} = y_t^2$

8+7

5. Evaluate the following:

(i)

$$\int \frac{x+3}{3x+4}\,dx$$

(ii)

$$\int \log x\,dx$$

(iii)

$$\int e^x(\cos x + \sin x)\,dx$$

5+5+5

6. (a) The demand and supply functions of a commodity in a market is given by the following equation (p and q represents price and quantity respectively):

$p = 1000 - 25q$ (demand function)

$p = 100 + q^2$ (supply function)

Calculate the equilibrium price and quantity and hence find the value of (i) Consumer Surplus and (ii) Producer Surplus using definite integration.

(b) Explain Gini coefficient as a measure of inequality with the help of Lorenz curve. What will be the value of the Gini coefficient for a country if the equation of the Lorenz curve for income distribution is given by

$$L(x) = {}^{x^2}/_{2} \quad \text{for } 0 \le x \le 1$$

where x = proportion of population arranged in increasing order of their wealth.

(2+3+3)+(3+4)

7. (a) Distinguish between relative and aggregative method of construction of index numbers.

(b) Calculate the price index number for the year 2022 assuming 2015 as the base year using (i) Laspeyre's method and (ii) Paasche's method

| Commodity | Year 2015 | | Year 2022 | |
|---|---|---|---|---|
| | Price (Rs.) | Quantity (Kg.) | Price (Rs.) | Quantity (Kg.) |
| A | 20 | 5 | 40 | 5 |
| B | 50 | 10 | 60 | 5 |
| C | 40 | 15 | 50 | 20 |
| D | 20 | 20 | 20 | 20 |

(c) What do you mean by Time Reversal test? Check whether Paasche's method of constructing price index numbers satisfy the time reversal test.

4+(3+3)+(1+4)

8. Discuss the importance of measuring Cost of Living Index (CLI) number. What are the major groups of consumer items that are considered while computing CLI in India? Describe the steps for construction of CLI.

6+2+7