## Question wise Mark Summary

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Instructions to Candidate

1. Submissions that are incomplete or contain typographical errors, will be considered incomplete and will not be scored.
2. All answers should be written in English.
3. Calculators are not allowed.
4. You have 3 hours to complete the exam.
5. Ensure your answers are clear and legible.
6. Show all your working.
7. Submit your answer script in the provided answer book.
8. Good luck!
## SENIOR SCHOOL CERTIFICATE EXAMINATION (CLASS XII)

Central Board of Secondary Education, Delhi

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**Head Examiner (If checked)**

Total of marks in words: [Box for signature]
Section B - Macroeconomics

32. NDPpc

\[ \text{GFCF} + \text{PFCE} + \text{GDPcc} + \text{Closing stock} - \text{Opening stock} + \text{Net exports} \]

\[ = \text{NDPPc} \]

\[ \text{GFCF} = 100 \]
\[ \text{PFCE} = 200 \]
\[ \text{GDPcc} = 50 \]
\[ \text{Closing stock} = 25 \]
\[ \text{Opening stock} = 25 \]
\[ \text{Net exports} = 10 \]

\[ \Rightarrow \text{NDPPc} = 460 \]

\[ \text{GDPpc} = 460 \]
\[ \text{NIT} = 80 \]
\[ \text{GDPpc} = 380 \]
\[ \text{Dep} = 20 \]

\[ \text{NDPPc} = 360 \]
NNDI

NDP\text{at} = 360
+ NIT = 80
NDP\text{MP} = 440
+ NPIA = -10
NN\text{MP} = 430
+ Net current transfers from abroad = -5
NNDI = 425

and: NNDI is Rs. 425 Akhab.

31. Natural Income Equilibrium through Aggregate Demand (AD) & Aggregate Supply (AS)

Diagram:

\text{AD} = \text{AS}
\text{AS} = \text{AO} + \text{APS}
\text{AD} = \text{AO} + \text{APS}
Schedule (c = 100, MPC = 0.6, Ip = 100)

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<th>Ip</th>
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Explanation:
- AD is the total demand of all the final goods and services produced by an economy in a accounting year.
  - The AD curve is upward sloping with a positive intercept on Y axis
    \[ AD = C + Ip \]
- AS is the total supply of all final goods & services produced
  - The AS curve is a 45° line through the origin
    \[ AS = Y + c_1S \]
- Equilibrium is attained when AD = AS i.e. at level of income OM.
  - There is no tendency to change
Changes when economy is not in equilibrium:

Case 1:
- At level of income OMₙ, AD < AS
- This means that the producers will find that their inventories are piling up with stock.
- To correct this, they reduce employment. This reduces the output and hence, the income.
- Income falls till level OM₁, where AD = AS.
- Here, there is no tendency to change.

Case 2:
- At level of income OM₁, AB > AS
- Producers see that their inventories are reducing and they have to sell their saved stock.
- Thus, they increase employment.
- This increases the output, hence income rises.
- Income rises till level OM₂, where AD = AS.
- Here, there is no tendency to change.
30.

i) Fee to a mechanic is by a firm is not included.

This is an inter-firm payment.
It is a part of the intermediate consumption of the firm and has already been accounted for in its final value and expenses.
Thus, the fee paid to a mechanic is excluded from the GVA.

ii) Interest on a car loan is not included.

This is because the loan was taken to meet the consumption demand of the individual. This loan itself does not correspond to any productive activity being performed in the economy. Since no productive activity is being performed, the given interest is not a part of GVA.
ii) Expenditure on a car purchased by a firm is included in estimating GDP because it is because this car is bought for the purposes of investment and helps to enhance the future productive capacity of the firm. This is a final good as it's used for investment and is a part of the final expenditure, and hence this expenditure is included in GDP.
29. **LENDER OF LAST RESORT FUNCTION**

1. The commercial banks are obligated to keep a percentage of their net total demand and time liabilities as reserve with the central bank. This is called the cash reserve ratio (CRR), which is used as an instrument of monetary and credit control.

   Whenever banks are in need of funds, the central bank lends them funds from this reserve, along with centralized clearing and settlement facilities.

2. The banks also tend to deposit excess reserves with the central bank. The central bank draws on the excess reserves to meet clearing demands caused by settlements with other reserve banks and also to meet net withdrawals by account holders.
By using the pool of reserves to lend short-term funds to the commercial banks, the central bank acts as a Commercial Lender of Last Resort.

27. Given: \( y = 1500 \)
\( c = 300 \)
\( I = 300 \)
Economy is in equilibrium.

Solution: At equilibrium, we know that
\[ A\Sigma = A\Pi \]
\[ b \cdot y = c + I \] where \( c = 2 \) + by
\[ b = \frac{1}{1500} \]

2a) \( y = 2 + by + I \)

2b) \( y (1-b) = 2 + I \) On substituting the given value
\[ 1 - b = \frac{2 + I}{y} \]
\[ y \]
\[ 1 - b = \frac{1}{1500} \]

2c) \( 1 - (z + I) \cdot b - 0 \)
\[ 1 - \frac{600}{1500} = b \]
28. The government’s increased expenditure on public goods is an effort to increase the public welfare. This is done in the interests of the public, to ensure that they receive better facilities. This expenditure is essential for the development and progress of the society.
This reallocation of resources is done to execute public works programs. It aims to bring about expenditure on developmental and essential items like education, healthcare, and provision of facilities like electricity, railways. This is also done to raise the standard of living and reduce inequalities in income and wealth.

The government achieves this through its budgetary policies of:
- reallocation of resources
- redistribution
- etc., etc.

Economic Value: Upliftment of standard of living.
25. Store of Value: Function of Money:

- Money is an asset that can be used to store generalized purchasing power.
- Nowadays, savings are done in the form of money.
- This is because money has many advantages over the barter system, in which goods were used to store purchasing power.

**Advantages:**
- Unlike goods, money is not perishable.
- Money occupies less space. Its storage is more convenient and less costly than for goods.
- The value of money remains more or less static, unlike goods, which depreciate in value.
- Money is portable.
- It has general acceptability and is more convenient.

Thus, it serves to conveniently act as a Store of Value.
24. EXTERNALITIES refer to a situation in which the actions of one, inadvertently either harm the actions of another or cause another individual benefits.

* Externalities come without payments for accompanying compensation if harm is done, nor receipt of benefits are provided.

* Example: Externalities affect the welfare of one equally, but are not included in the Real GDP.

Example:
A factory set up along a river.
This factory discharges untreated wastes into the river water and has large emissions of smoke.
This leads to air, soil, and water pollution.
The pollution so caused is the externality.
This reduces the welfare of the people. Thus, the welfare is lower than what the GDP may indicate as
The GDP includes only the value of goods & services produced by the factory and not the pollution caused by it.

23. Giving incentives for exports increases exports. This increases the supply of foreign exchange.

As we can see from the curve, an increase in supply leads to a rightward shift of the supply curve.
As a result, there is a disequilibrium.

To reattain equilibrium, the rate of exchange falls.

This ensures an increase in quantity of foreign exchange demanded (inverse relationship) and increase in quantity supplied (direct relationship).

The new rate of exchange is OR, at point O', the new equilibrium.

Since OR < OR'

So, it is said that the currency has appreciated and foreign exchange rate has reduced.

22 (i) Revenue Expenditure

This expenditure on the collection of taxes neither increases assets nor reduces liabilities. It is incurred on the regular day-to-day functioning.
ii) Capital Expenditure.

The purchase of computers is an increase in the assets and thus the corresponding expenditure is a capital expenditure. It is made for the purposes of investment.

21. Marginal Propensity to Consume (MPC or 'b') is defined as the change in consumption as a proportion of the change in income.

\[
MPC = \frac{\Delta C}{\Delta Y}
\]

20. Demand deposits refer to those deposits which can be cashed in via cheques. They are deposits from which withdrawals can be made.
19. **Devaluation** refers to a fall in the price or value of the domestic currency in terms of the foreign currency, under the Fixed Exchange Rate System. This is officially announced by the government.

18. **Government Budget** is an annual statement of the estimated receipts and estimated expenditure of the government, over an accounting year. (i.e., from April 1st to March 31st in India).

17. **Aggregate Supply (AS)** refers to the total supply of all the final goods and services produced in an economy, over a given period of time i.e. an accounting year. It is represented by a 45° line $\text{AS}$.
26. Deficit in the balance of payments refers to a situation where the total outflow of autonomous transactions is less than the total inflow of autonomous transactions. (negative item)

This happens because the items on the debit side are more than the items on the credit side (positive item)

Causes:
- Such a deficit can be caused due to developmental activities, in which developing nations import heavily from developed nations (e.g., machinery, services)
- In times of inflation, foreign goods are cheaper and are thus imported. This could also lead to a deficit.
- In times of booms in the economy, if times the domestic production is unable to satisfy the need of the economy, this also leads to imports & thus a deficit.

Financing of deficit by accommodating transactions:
1) Foreign exchange reserves from the central bank can be used to cover the deficit.
2) Borrowing from external sources like IMF or World Bank may also be undertaken.
Section A - Microeconomics

16. INDIFFERENCE CURVE ANALYSIS

Definition:

Consumer Equilibrium is defined at that level of consumption where the consumer gets maximum satisfaction at the given income and prices, and there is no tendency to change.

Assumptions:
- Utility is cardinal (can be ranked)
- The consumer is rational
- Price and income are given
- Consumer spends his entire income
- MRS is falling
- Preferences are monotonic

Diagram:
Conditions for equilibrium:

(i) Slope of LC = Slope of Budget Line
\[ \frac{MRS}{MRE} = \frac{P_x}{P_y} \]

(ii) MRS is continuously falling i.e. it is strictly convex.

Explanation:

- MRS is the Marginal Rate of Substitution, which is the rate at which the consumer is willing to sacrifice some units of Y for 1 unit of X.
\[ \frac{MRS}{MRE} = \frac{\text{2x obtained}}{\text{A bought}} \]

- MRE, Market Rate of Exchange, is the rate at which the consumer has to sacrifice some units of Y to get 1 unit of X, as required by the market.

At point E, i.e. the point of tangency,
\[ \frac{MRS}{MRE} = \frac{P_x}{P_y} \]
This means that the consumer is willing to sacrifice at the same rate as required by the market.
Thus he has no incentive to buy more or less of X.
This point E, is the point of equilibrium.

Case 1: When \( MRS > \frac{px}{py} \)
- This means that the consumer is willing to sacrifice more \( Y \) as compared to the needs of the market.
- He values \( X \) more than the market.
- This induces him to buy more of \( X \) good.
- By law of diminishing marginal utility, \( MRS \) will fall till it equals \( \frac{px}{py} \) (MKE).
- Hence, there is no tendency of \( Y \) to change.

Case 2: When \( MRS < \frac{px}{py} \)
- The consumer is willing to sacrifice less \( Y \) than what the market requires.
- He values \( X \) less than the market.
- This induces him to buy less of \( X \) and more of \( Y \).
By the law of diminishing marginal utility, MRS falls till it equals BE and there is no tendency to change.

MRS must fall continuously for a society convex to, with no flat portions. This helps attain a unique equilibrium point.

Diagram:

- MRS
- Law of Diminishing Marginal Utility
- Equilibrium Point

Quantity exchanged (Q)
Introduction:

- DD is the original demand curve.
- SS is the original supply curve. The new supply curve is to the left of SS.
- OP was the equilibrium price and OQ was the equilibrium quantity.
- E was the point of equilibrium.

Changes:

- At the price level OP, the supply is now less than the demand. This is a situation of excess demand.
- This leads to a competition between consumers.
- A price of one good begins to rise.
- Due to this, the demand falls (inverse relation) and supply rises (direct relation).
- The upward movement along both curves continues till the gap EF reduces to zero.
- This happens when price level OP is reached where the demand = supply (new).
Result:
- The new equilibrium point is $E'$.
- Equilibrium price changed from $OP$ to $OP'$.
- Equilibrium quantity fell from $OQ$ to $OQ'$.

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Diagramatic representation of above schedule.
Principle:

We know that when one additional unit is sold in the market, MR is the gain and MC is the cost.
So, MR - MC = net gain.

As long as MR > MC, gain > 0, and it is profitable to produce more.

**Conditions for equilibrium**

\[ MC = MR \]

[MC > MR for 1 more unit sold]

Explanation:

From the given schedule, (at point A)

- At the 2nd unit sold, MR = MC, so net gain was zero.
- But at the 3rd unit, MR > MC. This meant that it was profitable to produce more. A' was **not** the point of equilibrium.
- Thus, the producer produced the 3rd unit.
- At the 4th unit (i.e., at point B),
  \[ MC = MR \] again. The net profit was zero.
- After point B, i.e., when the 5th unit was to be sold, it was found that
  \[ MC > MR \].

This would lead to losses and the total output would fall.
Thus the producer stops at point B, i.e. at the 4th stage of production.

Point B: Point of Equilibrium at level 4
Profit at B = zero
Total profit gained by producing 4 units.

11. Market demand for a good is defined as the total demand of all consumers for that good at the given price and at the given point of time.

It's the sum of all the individual demands.

Factors determining market demand:
1. Price of the commodity
2. Level of Income
3. Price of related goods (i.e. substitute and complementary)
4. No. of Consumers
5. Income distribution
6. Trade and preference
7. Hoarding and speculation

[Diagram]

The law of variable proportions states that the total physical product (TPP) first increases at an increasing rate, then at a decreasing rate, and finally falls; when the variable factor input is changed keeping all other factors constant. It's seen that the marginal product (MPP) first rises, then falls and finally becomes negative.
Causes:
1. MPP increases in Stage I due to: Increasing Returns
   a) Fuller use of the variable factor: As more units are employed, division of labour and specialization is practiced.
   b) Fuller use of fixed factor: Fixed factor is more efficiently utilized.
   c) Indivisibility of capital and its optimal combination: Capital or fixed factors are indivisible.
      Since we start with a suboptimal combination of fixed and variable factors and approach the optimal combination.

2. MPP falls in Stage II: Diminishing Returns
   a) Lack of perfect substitutes between factors: Manual labour can't compensate for machinery only up to a certain extent.
   b) Use beyond optimum capacity: As we move beyond the optimum combination of fixed and variable factors, efficiency falls due to wear and tear.
(c) F组成性未固定因素：每单位可变投入的固定因素的减少意味着产出下降，且收益率降低。

3. MPP a negative in stage III: Negative returns.

4. Due to overcrowding:
   when too many variable inputs are employed,
   they come in each others way and efficiency falls.

10. \( \frac{P}{Q} \) \( \frac{Q}{\text{Units}} \)

<table>
<thead>
<tr>
<th>P (lb)</th>
<th>Q (Units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>9</td>
<td>x</td>
</tr>
</tbody>
</table>

\[
ed = \frac{\Delta Q \times 100}{Q}
\]

\[
ed = \frac{\Delta Q \times 100}{\Delta P}
\]

\[
ed = \frac{30}{20}
\]

\[
ed = \frac{1}{10} \times 100
\]

\[
ed = \frac{\Delta P}{P}
\]

\[
ed = \frac{\Delta Q}{3}
\]

 Ans: The consumer will buy 26 units.
9. For whom to produce:

- This problem deals with the distribution of goods between the different classes of a society i.e., who gets what.
- In a centrally planned economy, the resources are equally distributed in the society, so that the share of each individual is equitable.
- In a market economy, this decision is made with the help of the free forces of market demand and supply, which determine the price of the good.
- This price in turn determines the income of the factor of production who have contributed to the production process. The income so determined determines the purchasing power of the individuals.
- Goods are produced only for those who have the purchasing power to buy them. In a market economy,
8. Oligopoly's Interdependence

- The number of firms or large firms producing most of the output is less or few in an oligopoly.
- Thus, their number is manageable enough to predict the reactions of a rival firm when the price or output of a firm is varied.
- When such a change in price and/or output is done, the rivals have a knowledge about these changes and the way the firm operates.
- They are likely to react by changing their own price and output of the quantity produced.
- The given firm should be able to anticipate this reaction of the rival firms.
- Thus, he should take this into account before changing the price or output of his good.
- Thus, firms are interdependent on each other regarding decisions about price and output.
6. Average fixed cost is defined as the total fixed cost per unit of output produced.

\[ AFC = \frac{TC}{Q} \]

<table>
<thead>
<tr>
<th>Units (Q)</th>
<th>TPC (Rs)</th>
<th>AFC (Rs)</th>
<th>AFC (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>100</td>
<td>33.3</td>
<td>33.3</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>5</td>
<td>100</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>100</td>
<td>16.67</td>
<td>16.67</td>
</tr>
<tr>
<td>7</td>
<td>100</td>
<td>14.2</td>
<td>14.2</td>
</tr>
<tr>
<td>8</td>
<td>100</td>
<td>12.5</td>
<td>12.5</td>
</tr>
<tr>
<td>9</td>
<td>100</td>
<td>11.1</td>
<td>11.1</td>
</tr>
<tr>
<td>10</td>
<td>100</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>
The curve is a rectangular hyperbola.

The AFC increases hyperbolically with the increase in output as shown by the schedule and curve.

5. Indifference map is the set of all the indifference curves that the consumer can have. The different levels signify different levels of satisfaction.

\( (C_3) > (C_2) > (C_1) \) (Order of level of satisfaction)

4. A perfect monopoly is one in which the goods produced are homogeneous.

3. Returns to a factor refers to a change in the behaviour of the total physical product when one more unit of the variable factor input is employed, keeping all other factors constant.
2. Due to reduction of unemployment, resources are now fully and efficiently utilized. The economy now operates on point B lying on the PPC due to fuller and efficient utilization of resources.

Thus, the level of production is more than before as more goods are produced.

1. Marginal revenue is defined as the addition made to the total revenue when one more unit of the output is sold.

\[ MR = TR_n - TR_{n-1} \]

OR

\[ MR = \frac{\Delta TR}{\Delta Q} \]
13. **Utility Analysis:**

The consumer consumes two goods A and B.

The conditions for equilibrium are:

1. \( \frac{MU_B}{P_B} = \frac{MU_A}{P_A} \) \( \text{M.R.U.B. = M.R.U.A.} \) \( \text{i.e., the marginal utility derived per rupee of the goods A & B same for the last rupee spent on each good.} \)

2. Marginal utility falls as the consumption of a good increases, by the law of diminishing marginal utility.

Given: Price of B falls

\[ \frac{MU_B}{P_B} < \frac{MU_A}{P_A} \]

Thus, a disequilibrium is attained.

As a result, the marginal utility derived per rupee for good B is greater than that of good A.
* This means that if the price of good B decreases, the consumer gains more utility than he loses.
* As a result, he would consume more of good B than good A.
* As more and more units of good B are consumed, by the law of diminishing marginal utility, MUs will fall.
* MUs will fall till $MUs = MUs_{Pa}$

* Here, the equilibrium is attained.
* This means that to reach equilibrium again, i.e., to maximize the consumer satisfaction, the consumption of B increases when the price of B decreases.
1. Relationship between Marginal Revenue Total Cost and Marginal Cost

- According to law of variable proportion, behaviour of total cost and marginal cost is:

<table>
<thead>
<tr>
<th>Schedule</th>
<th>TFC = Rs. 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units</td>
<td>TC</td>
</tr>
<tr>
<td>1</td>
<td>47</td>
</tr>
<tr>
<td>2</td>
<td>53</td>
</tr>
<tr>
<td>3</td>
<td>3860</td>
</tr>
<tr>
<td>4</td>
<td>68</td>
</tr>
</tbody>
</table>
Relationship:

* Initially, when marginal cost is falling, TC is increasing at a decreasing rate.

This is because in the 1st stage of production, there are increasing returns to a factor i.e., assuming that each new unit of the variable factor is paid the same; the marginal cost of each new unit falls.

* In the 2nd stage of production, due to diminishing returns to a factor; the MC is found to be rising.

Thus when the MC of each new unit produced, the total cost increases at an increasing rate.