Theory of Production

1) Which of the following is considered production in Economics?
   a. **Tilling of soil**
   b. Singing a song before friends.
   c. Preventing a child from falling into a manhole on the road.
   d. Painting a picture for pleasure.

2) Identify the correct statement:
   a. **The average product is at its maximum when marginal product is equal to average product.**
   b. The law of increasing returns to scale relates to the effect of changes in factor proportions.
   c. Economies of scale arise only because of indivisibilities of factor proportions.
   d. Internal economies of scale can accrue when industry expands beyond optimum.

3) Which of the following is not a characteristic of land?
   a. Its supply for the economy is limited.
   b. It is immobile.
   c. Its usefulness depends on human efforts.
   d. **It is produced by our forefathers.**

4) Which of the following statements is true?
   a. Accumulation of capital depends solely on income of individuals.
   b. **Savings can be influenced by government policies.**
   c. External economies go with size and internal economies with location.
   d. The supply curve of labour is an upward slopping curve.

5) In the production of wheat, all of the following are variable factors that are used by the farmer except:
   a. the seed and fertilizer used when the crop is planted.
   b. **the field that has been cleared of trees and in which the crop is planted.**
   c. the tractor used by the farmer in planting and cultivating not only wheat but also corn and barley
   d. the number of hours that the farmer spends in cultivating the wheat fields.

6) The marginal product of a variable input is best described as:
   a. total product divided by the number of units of variable input
   b. **the additional output resulting from a one-unit increase in the variable input.**
   c. the additional output resulting from a one-unit increase in both the variable and fixed inputs.
   d. the ratio of the amount of the variable input that is being used to the amount of the fixed input that is being used.

7) Diminishing marginal returns implies:
    a. decreasing average variable costs.
    b. decreasing marginal costs
    c. increasing marginal costs
    d. decreasing average fixed costs.

8) The short run, as economists use the phrase, is characterized by
    a. at least one fixed factor of production and firms neither leaving nor entering the industry.
    b. generally, a period which is shorter than one year.
    c. all factors of production are fixed and no variable inputs.
    d. all inputs are variable and production is done in less than one year.

9) The marginal, average, and total product curves encountered by the firm producing in the short run exhibit all of the following relationships except:
    a. when total product is rising, average and marginal product may be either rising or falling.
    b. when marginal product is negative, total product and average product are falling.
    c. when average product is at a maximum, marginal product equals average product, and total product is rising.
    d. when marginal product is at a maximum, average product equals marginal product, and total product is rising.

10) To economists, the main difference between the short run and the long run is that:
    a. In the short run all inputs are fixed, while in the long run all inputs are variable
    b. In the short run the firm varies all of its inputs to find the least-cost combination of inputs.
    c. In the short run, at least one of the firm's input levels is fixed.
    d. In the long run, the firm is making a constrained decision about how to use existing plant and equipment efficiently.

11) Which of the following is the best definition of "production function"?
    a. The relationship between market price and quantity supplied.
    b. The relationship between the firm's total revenue and the cost of production.
    c. The relationship between the quantities of inputs needed to produce a given level of output
    d. The relationship between the quantity of inputs and the firm's marginal cost of production.

12) The "law of diminishing returns" applies to:
    a. the short run, but not the long run.
    b. the long run, but not the short run.
    c. both the short run and the long run.
    d. neither the short run nor the long run.

13) Diminishing returns occur:
    a. when units of a variable input are added to a fixed input and total product falls.
    b. when units of a variable input are added to a fixed input and marginal product falls
    c. when the size of the plant is increased in the long run
    d. when the quantity of the fixed input is increased and returns to the variable input falls.

Use the following information to answer questions 14-16.

Hours of Labour	Total Output	Marginal product
0	-	-
1	100	100
2	-	80
3	240	0

14) What is the total output when 2 hours of labour are employed?
   a. 80
   b. 100
   c. 180
   d. 200

15) What is the marginal product of the third hour of labour?
   a. 60
   b. 80
   c. 100
   d. 240

16) What is the average product of the first three hours of labour?
   a. 60
   b. 80
   c. 100
   d. 240

17) If a firm moves from one point on a production isoquant to another, which of the following will not happen.
   a. A change in the ratio in which the inputs are combined to produce output
   b. A change in the ratio of marginal products of the inputs
   c. A change in the marginal rate of technical substitution
   d. A change in the level of output.

18) Which of the following statements is true?
   a. The services of a doctor are considered production
   b. Man can create matter
   c. The services of a housewife are considered production.
   d. When a man creates a table, he creates matter.

19) Which of the following is a function of an entrepreneur?
   a. Initiating a business enterprise
   b. Risk bearing
   c. Innovating.
   d. All of the above

20) In describing a given production technology, the short run is best described as lasting:
   a. up to six months from now.
   b. up to five years from now
   c. as long as all inputs are fixed
   d. **as long as at least one input is fixed.**

21) If decreasing returns to scale are present, then if all inputs are increased by 10% then:
   a. output will also decrease by 10%
   b. output will increase by 10%.
   c. **output will increase by less than 10%**
   d. output will increase by more than 10%

22) The production function is a relationship between a given combination of inputs and:
   a. another combination that yields the same output.
   b. **the highest resulting output.**
   c. the increase in output generated by one-unit increase in one output.
   d. all levels of output that can be generated by those inputs.

23) If the marginal product of labour is below the average product of labour, it must be true that:
   a. the marginal product of labour is negative.
   b. the marginal product of labour is zero
   c. **the average product of labour is falling.**
   d. the average product of labour is negative

24) The average product of labour is maximized when marginal product of labour
   a. **equals the average product of labour**
   b. equals zero
   c. is maximized
   d. none of the above.

25) The law of variable proportions is drawn under all of the assumptions mentioned below except the assumption that:
   a. **the technology is changing**
   b. there must be some inputs whose quantity is kept fixed
   c. we consider only physical inputs and not economically profitability in monetary terms.
   d. the technology is given and stable.

26) What is a production function?
   a. **Technical relationship between physical inputs and physical output**
   b. Relationship between fixed factors of production and variable factors of production.
   c. Relationship between a factor of production and the utility created by it.
   d. Relationship between quantity of output produced and time taken to produce the output.

27) Laws of production does not include ......
    a. returns to scale.
    b. law of diminishing returns to a factor
    c. law of variable proportions
    d. least cost combination of factors.

28) An Iso-quant shows:
    a. All the alternative combinations of two inputs that can be produced by using a given set of output fully and in the best possible way.
    b. All the alternative combinations of two products among which a producer is indifferent because they yield the same profit
    c. All the alternative combinations of two inputs that yield the same total product.
    d. Both (b) and (c).

29) Economies of scale exist because as a firm increases its size in the long run:
    a. Labour and management can specialize in their activities more.
    b. As a larger input buyer, the firm can get finance at lower cost and purchase inputs at a lower per unit cost
    c. The firm can afford to employ more sophisticated technology in production.
    d. All of these

30) The production function:
    a. Is the relationship between the quantity of inputs used and the resulting quantity of product.
    b. Tells us the maximum attainable output from a given combination of inputs.
    c. Expresses the technological relationship between inputs and output of a product.
    d. All the above.

31) The production process described below exhibits.

Number of Workers	Output
0	0
1	23
2	40
3	50

    a. constant marginal product of labour.
    b. diminishing marginal product of labour
    c. increasing return to scale
    d. increasing marginal product of labour.

32) In the short run, the firm's product curves show that
   a. Total product begins to decrease when average product begins to decrease but continues to increase at a decreasing rate.
   b. When marginal product is equal to average product, average product is decreasing but at its highest.
   c. When the marginal product curve cuts the average product curve from below, the average product is equal to marginal product.
   d. **In stage two, total product increases at a diminishing rate and reaches maximum at the end of this stage.**

33) A fixed input is defined as
   a. That input whose quantity can be quickly changed in the short run, in response to the desire of the company to change its production.
   b. **That input whose quantity cannot be quickly changed in the short run, in response to the desire of the company to change its production**.
   c. That input whose quantities can be easily changed in response to the desire to increase or reduce the level of production.
   d. That input whose demand can be easily changed in response to the desire to increase or reduce the level of production.

34) Average product is defined as
   a. total product divided by the total cost.
   b. total product divided by marginal product.
   c. **total product divided by the number of units of variable input**
   d. marginal product divided by the number of units of variable input.

35) Which of the following statements is true?
   a. After the inflection point of the production function, a greater use of the variable input induces a reduction in the marginal product
   b. Before reaching the inevitable point of decreasing marginal returns, the quantity of output obtained can increase at an increasing rate
   c. The first stage corresponds to the range in which the AP is increasing as a result of utilizing increasing quantities of variable inputs
   d. **All the above.**

36) Marginal product, mathematically, is the slope of the
   a. **total product curve.**
   b. average product curve
   c. marginal product curve
   d. implicit product curve.

37) Suppose the first four units of a variable input generate corresponding total outputs of 200, 350, 450, 500. The marginal product of the third unit of input is:
   a. 50
   b. **100**
   c. 150
   d. 200

38) Which of the following statements is false in respect of fixed cost of a firm?
   a. As the fixed inputs for a firm cannot be changed in the short run, the TFC are constant, except when the prices of the fixed inputs change
   b. **TFC continue to exist even when production is stopped in the short run, but they exist in the long run even when production is not stopped**
   c. Total Fixed Costs (TFC) can be defined as the total sum of the costs of all the fixed inputs associated with production in the short run.
   d. In the short run, a firm's fixed cost cannot be escaped even when production is stopped.

39) Diminishing marginal returns for the first four units of a variable input is exhibited by the total product sequence
   a. 50, 50, 50, 50
   b. 50, 110, 180, 260
   c. 50, 100, 150, 200
   d. **50, 90, 120, 140**

40) Use the following diagram to answer the question given below it
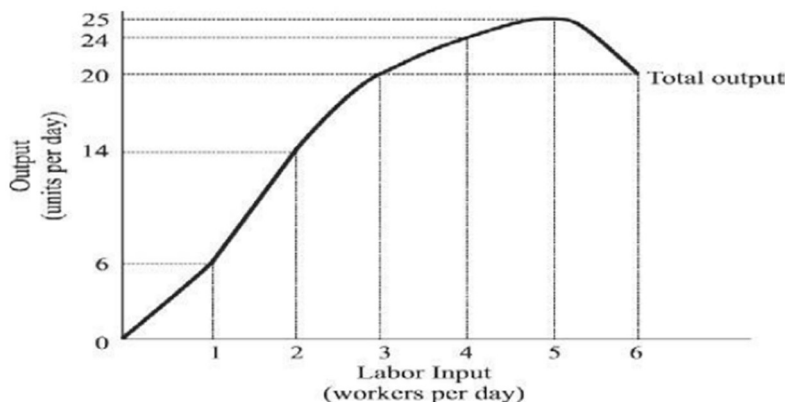
The marginal physical product of the third unit of labour is ____, the MP of the ____ labour is Negative

   a. Six; fourth
   b. Six; third
   c. Six; fifth
   d. **Six; sixth**

41) In the third of the three stages of production:
   a. the marginal product curve has a positive slope.
   b. **the marginal product curve lies completely below the average product curve.**
   c. total product increases
   d. marginal product is positive.

42) Which of the following statements describes increasing returns to scale?
   a. Doubling of all inputs used leads to doubling of the output.
   b. Increasing the inputs by 50% leads to a 25% increase in output.
   c. Increasing inputs by 1/4 leads to an increase in output of 1/3
   d. None of the above

43) The most important function of an entrepreneur is to _____.
   a. Innovate
   b. Bear the sense of responsibility
   c. Finance
   d. Earn profit

44) Assertion (A): In the short run, a producer operates in only II stage of Law of Diminishing Returns where average product of variable factor is declining
   Reason (R): In stage I and stage III the marginal product of the fixed and the variable factors respectively are negative.
   a. (A) is true and (R) is false
   b. Both (A) and (R) are true & (R) is the correct explanation of (A)
   c. Both (A) and (R) are true & (R) is not the correct explanation of (A)
   d. (A) is false and (R) is true

45) In the long run which factor of production is fixed?
   a. Labour
   b. Capital
   c. Building
   d. None of these

46) Law of diminishing returns to scale is relevant to_
   a. Short period
   b. Long period
   c. Market period
   d. None of these

47) The Cobb-Douglas homogeneous production function given as: $Q = L1/2\ k1/2$ exhibits-
   a. Constant returns to scale
   b. Decreasing returns to scale
   c. Increasing returns to scale
   d. All of the above at various level of output

48) In second stage of the Law of Variable Proportion-
   a. MP diminishes & AP increases
   b. AP diminishes but MP increases
   c. Both MP& AP diminish
   d. Both MP& AP increase

49) If all inputs are increased in the same proportion, then it is the case of
   1. Short run production function
   2. Long run production function
   3. Law of Variable Proportion
   4. Law of Returns to Scale
      a. 1 & 2 only
      b. 2 & 3 only
      c. 1 & 4 only
      d. 2 & 4 only

50)
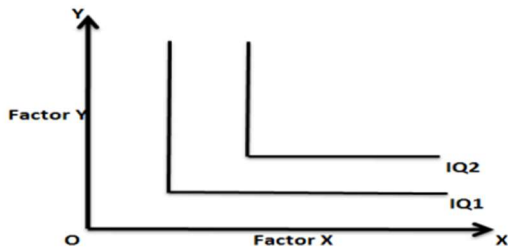
Iso-Quants shown in the above figure exhibits:

1. Perfect substitutability of factors
2. Perfect complementarily of factors
3. Fixed proportion production function
4. Variable proportion production function

   a. 1 & 2 only
   b. 1 & 3 only
   c. 3 & 4 only
   d. 2 & 3 only

51) Match List I with List II and choose the correct answer using the codes given below.

	List – I		List –II
A.	MP is larger than AP	1.	AP is at its maximum
B.	MP is equal to AP	2.	AP is falling
C.	MP is smaller than AP	3.	AP is rising

Codes	A	B	C
a.	1	2	3
b.	**3**	**1**	**2**
c.	2	3	1
d.	3	2	1

52) Match the following and choose the correct answer using the codes given below.

	Average Cost		Marginal Cost
A.	Ac Horizontal	1.	MC will rise at a greater rate
B.	AC rises	2.	MC falls but at a higher rate
C.	AC falls	3.	MC falls at higher rate & then rises at higher rate
D.	AC falls first & then rises	4.	MC will coincide with it

Codes	A	B	C	D
a.	4	2	1	3
b.	**4**	**1**	**2**	**3**
c.	1	2	3	4
d.	2	3	4	1

53) Cobb-Douglas function

When, P = Actual output

L = Labour C = Capital

b = No. of units of labour

k = Exponent of labour

j = Exponent of capital is represented as-

    a. $P = b \, L^j C^k$

    b. $P = b \, L^{1/j} C^{1/k}$

    c. $P = b \, L^k C^j$

    d. $P = 1/b \, L^k C^j$

54) Assertion (A): An Iso-cost line is a straight line.

Reason (R): The market rate of exchange between the two inputs is constant.

    a. (A) is true and (R) is false

    b. Both (A) and (R) are true & (R) is the correct explanation of (A)

    c. Both (A) and (R) are true & (R) is not the correct explanation of (A)

    d. (A) is false and (R) is true

55) "Returns to Scale" refers to the effect on total output of changes in:

    a. a factor

    b. various inputs separately

    c. all the inputs simultaneously

    d. None of these

56) Consider the following statements about the relationship between cost and production

1. When AP rises, AVC falls
2. When AP reaches at maximum, AVC is minimum
3. When AP falls, AVC rises

Which of the above statements is correct?

    a. 1 & 2

    b. 3 only

    c. 1, 2 & 3

    d. 2 & 3

57) Which one of the following is not an assumption of law of variable proportion?
   a. Technology of production remains unchanged.
   b. Only physical inputs & output are considered.
   c. All units of variable factors are different.
   d. The must be some inputs whose quantity is kept fixed.

58) The schedule given below representing the combinations of two variable inputs (Labour & Capital) for two Isoquants of output 100 and 200 respectively

Combinations	IQ$_1$			IQ$_2$		
	Output	Capital	Labour	Output	Capital	Labour
I	100	90	10	200	85	5
II	100	60	20	200	70	10
III	100	40	30	200	60	15
IV	100	30	40	200	55	20

On the basis of above schedule, which of the following statement is true?

   a. IQ1 & IQ2 are parallel to each other
   b. IQ1 & IQ2 are non-parallel & intersecting to each other.
   c. IQ1 & IQ2 are neither parallel nor intersecting each other.
   d. Can't say

59) Isoquant word is made up of two words i.e., Iso & Quant. Where quant means quantity or output then Iso means-
   a. Maximum
   b. Equal
   c. Minimum
   d. None of these

60) Isoquant curve is convex to the origin due to diminishing MRTS. If X-axis is labour (L) axis & Y-axis is Capital (K) axis, then MRTS =
   a. $\Delta L / \Delta K$
   b. $\Delta K / \Delta L$
   c. $1 / \Delta K$
   d. a. and b.

61) An isoquant slopes:
   a. downward to the left
   b. downward to the right
   c. upward to the left
   d. upward to the right

62) At shut down point:
   a. Price is equal to AVC
   b. Total revenue is equal to TVC
   c. Total loss of the firm is equal to TFC
   d. All of the above

63) The marginal cost curve intersects the average cost curve when average cost is:
   a. Maximum
   b. Minimum
   c. Raising
   d. Falling

64) If the total cost of manufacturing commodity 'X' is Rs. 1,50,000. Out of this implicit cost is Rs. 80,000 what will be explicit cost:
   a. Rs. 95,000
   b. Rs. 1,25,000
   c. Rs. 80,000
   d. Rs. 70,000

65) Which is the other name that is given to the long run average cost curve?
   a. profit curve
   b. planning curve
   c. demand curve
   d. indifference curve

66) Diminishing marginal returns imply
   a. decreasing average variable costs
   b. decreasing marginal costs
   c. increasing marginal costs
   d. decreasing average fixed costs

67) The producer is in equilibrium at a point where the cost line is:
   a. above the isoquant
   b. below the isoquant
   c. cutting the isoquant
   d. tangent to isoquant

68) Which of the following is not a characteristic of land?
   a. its supply for the economy is limited
   b. it is immobile
   c. its usefulness depends on human efforts
   d. it is produced by our forefathers

69) A firm's production function:
   a. Shows how much output and the level of input required for the firm to maximize profits
   b. Establishes the minimum level of output that can be produced using the available resources
   c. Shows the maximum output that can be produced with a given amount of inputs with available technology
   d. Shows labour force which is employed

70) According to ___, land has certain original and indestructible powers and these properties of land cannot be destroyed
   a. Ricardo
   b. James bates
   c. James bates
   d. J.R. Parkinson

71) Which of the following function can never be delegated by the entrepreneur?
   a. Initiating the business enterprise
   b. Innovation
   c. Risk bearing
   d. All of the above

72) When Average product is maximum:
   a. MP is at maximum
   b. MP curve cuts AP from below
   c. Total Product is at maximum
   d. First stage of Increasing returns to factor ends.

73) Which of the following statement is not true?
   a. Iso-cost line never touches the axis
   b. Isoquants are convex to the origin
   c. Isoquants are non-intersecting
   d. Higher Iso-cost line shows higher budget

74) _____ is that point on TP at which MP is maximum
   a. Saturation point
   b. Production Optimization point
   c. Inflexion point
   d. Maximum point

75) The quantity of the variable factor becomes too excessive relative to the fixed factor so that they get in each other's way, is the case of:
   a. Increasing return to scale
   b. Decreasing return to scale
   c. Diminishing return to factor
   d. Negative return to factor

76) In Cobb-Douglas production function, if labour elasticity and capital elasticity is more than 1, it refers to:
   a. Increasing return to factor
   b. Constant return to scale
   c. Increasing return to scale
   d. Decreasing return to scale

77) Profit is the reward for bearing_____
   a. Foreseeable risk
   b. Uncertainties
   c. Both of the above
   d. None of the above

78) _____ is a precondition for mobilization of savings?
   a. Income of individual
   b. Ability to save
   c. Availability of financial products and institutions
   d. Willingness to save

79) If a firm moves from one point on a production isoquant to another, which of the following will not happen:
   a. A change in the ratio in which the inputs are combined to produce output
   b. A change in the ratio of marginal products of the inputs
   c. A change in the marginal rate of technical substitution
   d. A change in the level of output

80) Stages I and III are called
   a. Economic Absurdity
   b. Economic Stability
   c. Economic Equilibrium
   d. All of the above