

**ISB Certificate Programme in Manufacturing and Operations Management (CPMOM): Sample Questions**

**There are four sections in this test: Logical reasoning (10 questions), Data Interpretation (10 questions) Probability and Statistics (10 questions) Manufacturing aptitude ( 10 questions to be attempted out of 20). For each objective type question you are given 4 alternative answers, only one of which is correct. Tick the right answer. There is no negative marking. In the sample paper only 5,5,5,10 questions are provided.**

**Section A: Logical reasoning**

1. In March 2013, 15 new magazines appeared in the market. Seven of these magazines were entertainment magazines, five were journals of Current Affairs and three were aimed solely at women. By August 2013, only eight of these new magazines were still circulating in the market. Six of those that remained were entertainment magazines. Which one of the following can we infer?

- A] Only one of the magazines for women remained in the market.
- B] Only one of the Current Affairs magazines remained in the market
- C] Magazine readers prefer entertainment magazines to Current Affairs ones.
- D] At least one of the magazines that were cancelled was a Current Affairs magazine

2. Decide whether the data provided in the statements is sufficient to answer the question. Read both the statements and then answer

**Question:** In which year did 'X' graduate?

**Statements:**

- I) X graduated 3 years after his brother
- II) X's brother, who graduated in 1975, failed the second year of his schooling

- A] I alone is sufficient while II alone is not sufficient
- B] II alone is sufficient while I alone is not sufficient
- C] Neither I nor II is sufficient
- D] Both I and II together are sufficient

3. What is the value of  $X^2 - Y^2$  ?

- I)  $X + Y = 66$
- II)  $XY = 9$

- A] I alone is sufficient while II alone is not sufficient
- B] II alone is sufficient while I alone is not sufficient
- C] Neither I nor II is sufficient
- D] Both I and II together are sufficient

4. You have a cube with an edge of length 100 cms. It is painted on all faces. You then cut it into smaller cubes, each having an edge of length 10 cms. How many of these smaller cubes will have 3 faces painted?

- A] 12
- B] 80
- C] 100
- D] 8

**Directions for questions 5:** Refer to the following information to answer the questions that follow. S1, S2, S3, S4, S5, S6, S7, S8, S9 & S10 are 10 students from college X. They all went for an internship into particular fields A, B, C, D and E. Four of them worked in two fields each in such a way, that none of them was doing internships in the same set of fields.

- S3 interned in A and E and earned the least.
- S1 worked in C, earned more than S5, S2 and S7 and had the third highest earning.
- S8 interned in B and earned less than only S4, who had two internships.
- S2 earned more than S7 but less than S5.
- S7 worked in A and earned more than S6, who interned with B and E.
- 2 students had D as their field.
- All the students had different earnings.
- S9 and S10 did not intern in the fields that S4 interned in
- S9 and S10 interned in A
- C and D were not taken together by any student.

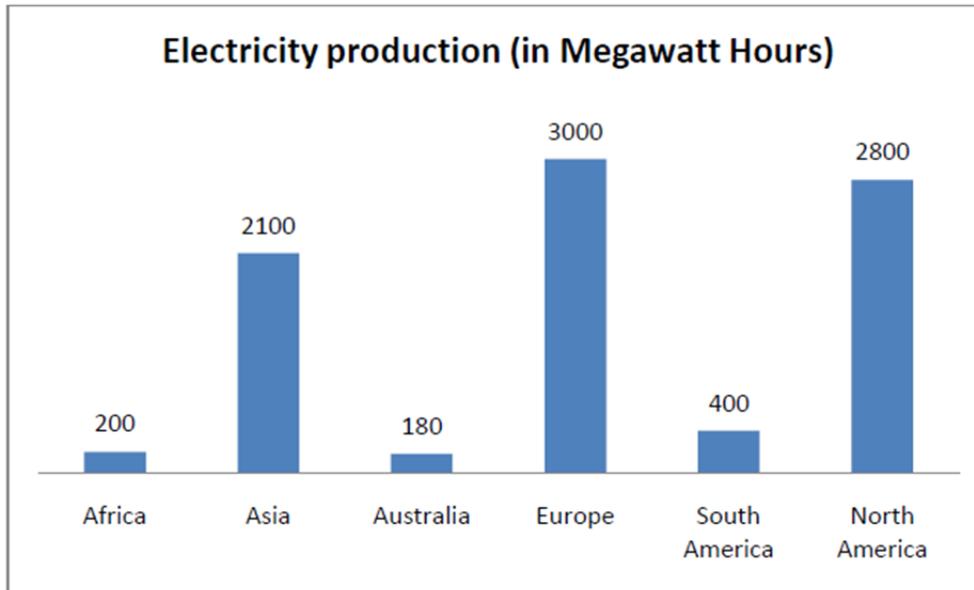
5. Which 2 fields did S4 intern in?

- A] B, E
- B] A, E
- C] A, B
- D] None of these

## Section B: Data Interpretation

Answer questions 6-8 on the basis of the following two diagrams:

**Chart 1:** Continent-wise electricity production in Megawatt Hours: (1 megawatt hour= 1,000,000 watt hours) for year X:



**Chart 2:** Table of percentage population across continents, in year X:

Continent	Percentage population
Africa	13
Asia	60
Australia	1
Europe	12
South America	9
North America	5

6. If the population of these 6 continents in year X was 8,000,000,000, which continent produced the highest watt-hours electricity per person?

- A) Europe
- B) North America
- C) South America
- D) Australia

7. During year X, if United States accounted for  $\frac{4}{5}$ th of the electricity production in North America and India accounted for  $\frac{1}{20}$ th of the electricity production in Asia. The ratio of electricity production in USA to that of in India is approximately:

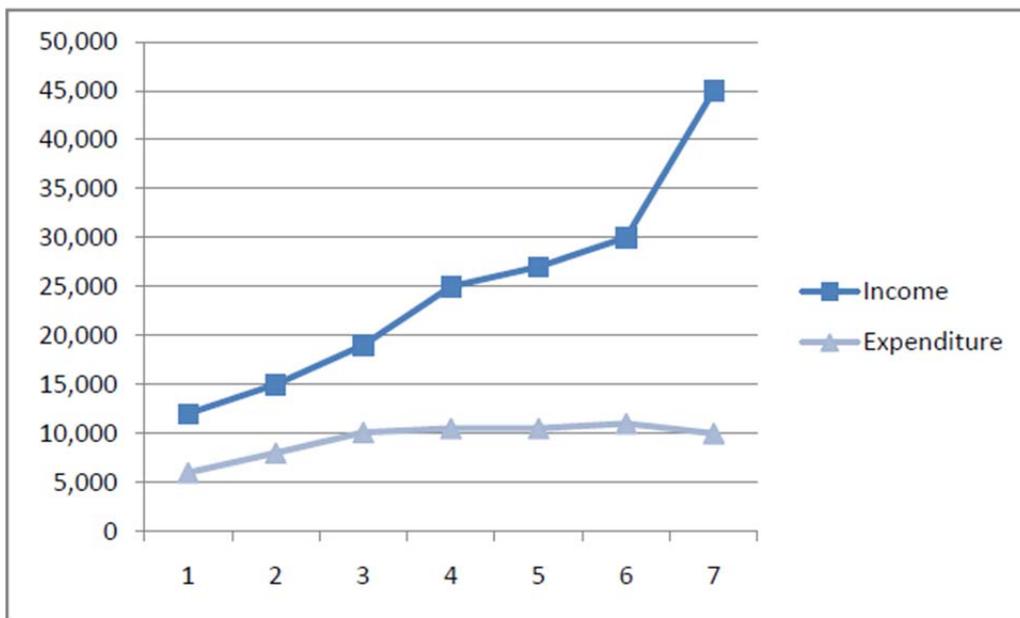
- A) 5:1
- B) 5:2
- C) 21:1
- D) 11: 2

8. By what percentage was the population of Europe greater/lesser than the population of Africa?

- A) -1%
- B) -7.7%
- C) +8.3%
- D) +1%

**Answer questions 9-10 with reference to the following diagram:**

**Chart 3:** The following line chart depicts Mr. A's income and expenditure, for years 1 to 7.



9. If savings is defined as income minus expenditure; between which two years was the percentage increase in savings over the previous year, the highest?

- A] From year 6 to year 7
- B] From year 5 to year 6
- C] From year 4 to year 5
- D] From year 3 to year 4

10. Considering only those years in which Mr. A's expenditure increased over the previous year; in which pair of years was the percentage increase in expenditure the least?

- A] From year 1 to year 2
- B] From year 3 to year 4
- C] From year 6 to year 7
- D] From year 4 to year 5

### Section C: Probability and Statistics

11. Thirty percent of citizens in country X own real estate property, Fifty percent own gold and six percent own both assets. What percentage own real estate property but not gold?

- A] 24%
- B] 64%
- C] 26%
- D] 37%

12. A smuggler wants to transfer his smuggled goods from city A to city B. There are three police check-posts between these two cities. Assume that there is no communication among the check-posts. The probabilities of him being caught at these three stops are 0.7, 0.5 and 0.3 respectively. What is the probability that he successfully transfers his goods?

- A] 0.105
- B] 0.5
- C] 0.245
- D] 0.045

**Questions 13-14 are based on the information given below:**

The maximum price of a particular stock A, was recorded for the last 13 trading days. The observations (in Rs.) were as follows:

28, 27, 38, 28, 26, 27, 29, 29, 32, 30, 30, 28, 35

13. What was the median price of the stock for last 13 days?

- A] 30
- B] 29
- C] 28
- D] 31

14. What was the mode of daily prices of stock A over last 13 days?

- A] 30
- B] 29
- C] 28
- D] 31

15. If the variance of three numbers a, b, c is 5, the variance of 9a, 9b, 9c is

- A] 45
- B]  $\frac{5}{9}$
- C]  $\frac{9}{5}$
- D] None of these

## Section D: Manufacturing Aptitude

Actual test will have 20 Questions out of which 10 need to be attempted.

Q16: Two balls of equal mass and of perfectly elastic material are lying on the floor. One of the ball with velocity  $v$  is made to struck the second ball. After the impact velocity of each of the two balls will be;

- A.  $V$
- B.  $2V$
- C.  $V/2$
- D. Zero

Q17: When a spring is bound it will possess ;

- A. Strain Energy
- B. Kinetic energy
- C. Sound Energy
- D. Heat Energy

Q18: Galvanizing is:

- A. process for making thin phosphate coating on steel
- B. zinc diffusion process
- C. process of coating zinc by hot dipping
- D. similar to Electro-plating

Q19: In a single point turning operation with a cemented carbide and steel combination tool having a Taylor exponent of 0.25, if the cutting speed is halved, then tool life will become:

- A. Two times
- B. Half
- C. Four time
- D. Sixteen time

Q20: Work Sampling is a technique used in;

- A. Estimation of time
- B. Quality control
- C. Market Research
- D. Forecasting

Q21: The formation of frost on cooling coils in a refrigerator will;

- A. increase heat transfer
- B. increase power consumption
- C. decrease power consumption

D. None of the above

Q22: In an inventory system (EOQ) Order size is 100 unit, Inventory holding cost per unit per year is Rs 1. If Inventory cost is increased to Rs 4 per unit per year, order size Q will be:

- A. 50
- B. 200
- C. 400
- D. Cannot be computed

Q23: Major constituent of Liquefied petroleum Gas (LPG) used for the cooking is:

- A. Propane and Butane
- B. Butane and Ethane
- C. Oxygen and Nitrogen
- D. Carbon Monoxide and Oxygen

Q24: If the RMS current through a 1KW resistor is 1mA, the peak voltage drop across resistor is:

- A. 1 Volt
- B. 10 Volt
- C. More than one volt
- D. More than 10 volt

Q25. A circuit consists of 5 Volt DC source and 4 resistors of equal Value of 1 ohm each. If the current from the source is 5 amps, the configuration is:

- A. All in series
- B. All in parallel
- C. Two parallel system of two resistors in series
- D. Two parallel system of one and three in series

All the Best!