

3. Building into a series of recent breakthroughs in viral vector analysis
 4. Building upon a series of recent breakthrough in viral vector analysis
- 14.** Followers of Islam, known as Muslims believed that God revealed his direct word for mankind to the prophet Muhammad and other prophets, including Adam, Noah, Abraham, Moses, and Jesus.
1. known as Muslims believe that God reveals his direct word for mankind
 2. called as Muslims believe that God revealed his direct word for mankind
 3. calling themselves as Muslims believe that God will reveal his direct word for mankind
 4. known as Muslims believe that God revealed his direct word for mankind
- 15.** Mount Etna in Sicily continued to discharge lava in spite of the established fact that it is no longer an active volcano.
1. continues to discharge lava in spite of the
 2. continues in discharging lava because of the
 3. is continuing to discharge lava regardless of the
 4. continues to discharge lava due to the

Directions for question 26 - 30: Read the following passage below and answer the questions that follow on the basis of what is stated / implied in that passage.

Modernism is a cultural movement that generally includes the progressive art and architecture, music, literature and design which emerged in the decades before 1914. It was a movement of artists and designers who rebelled against late 19th century academic and historicist traditions, and embraced the new economic, social and political aspects of the emerging modern world. Some divide the 20th century into modern and postmodern periods, whereas others see them as two parts of the same larger period.

The Modernist Movement emerged in the mid-19th century in France and was rooted in the idea that "traditional" forms of art, literature, social organization and daily life had become outdated, and that it was therefore essential to sweep them aside and reinvent culture forever. Modernism encouraged the re-examination of every aspect of existence, from commerce to philosophy, with the goal of finding that which was "holding back" progress, and replacing it with new, and therefore better, ways of reaching the same end. In essence, the Modern Movement argued that the new realities of the 20th century were permanent and imminent, and that people should adapt their world view to accept that what was new was also good and beautiful.

The first half of the 19th century for Europe was marked by a series of turbulent wars and revolutions, which gradually formed into a series of ideas and doctrines now identified as Romanticism, which focused on individual subjective experience, the supremacy of "Nature" as the standard subject for art, revolutionary or radical extensions of expression, and individual liberty. By mid-century, however, a synthesis of these ideas with stable governing forms had emerged, partly in reaction to the failed Romantic Revolutions of 1848. Called by various names, this stabilizing synthesis was rooted in the idea that what was "real" dominated over what was subjective. It was exemplified by Otto von Bismarck's *realpolitik*, by "practical" philosophical ideas such as positivism and in general by cultural norms now connoted by the term "Victorian era".

Central to this synthesis, however, was the importance of institutions, common assumptions and frames of reference. These drew their support from religious norms found in Christianity, scientific norms found in classical physics and doctrines that asserted that depiction of the basic external reality from an objective standpoint was in fact possible. Cultural critics and historians label this set of doctrines Realism, though this term is not universal. In philosophy, the rationalist and positivist movements established a primacy of reason and system.

Against the current ran a series of ideas, some of them direct continuations of Romantic schools of thought. Notable were the agrarian and revivalist movements in plastic arts and poetry (e.g. the Pre-Raphaelite Brotherhood and the philosopher John Ruskin). Rationalism also drew responses from the anti-rationalists in philosophy. In particular, Hegel's dialectic view of civilization and history drew

responses from Friedrich Nietzsche and Søren Kierkegaard, who were major influences on Existentialism. All of these separate reactions together, however, began to be seen as offering a challenge to any comfortable ideas of certainty derived by civilization, history, or pure reason.

26. One aspect of Modernism not mentioned in the passage is
 1. design
 2. music
 3. sculpture
 4. science
27. The separate intellectual reactions taken together
 1. were rational and practical.
 2. were rooted in philosophy.
 3. challenged ideas of certainty.
 4. were mainly put forward by Hegel, Nietzsche and Kierkegaard.
28. The central idea of the Modernist Movement in France was
 1. to embrace the new economic, social and political aspects of the modern world.
 2. to rebel against existing forms of culture and replace it with newer and better forms.
 3. to reinvent culture as the conventional forms of art, literature, social life and organization were outmoded.
 4. to bring about progress and reform in the economic, social and political aspects of life.
29. According to the passage
 1. modernism is an iconoclastic movement.
 2. tried to replace the old with the new.
 3. modernism is a political movement.
 4. modernism is a pan-cultural, progressive movement.
30. The 'stabilizing synthesis' rooted more in practical ideas was
 1. dominated by subjective ideas.
 2. against Christian frames of reference.
 3. termed the 'realpolitik' by Bismarck.
 4. partly in reaction to the failed Romantic Revolutions of 1848.

Directions for question 31 - 35: Read the following passage below and answer the questions that follow on the basis of what is stated / implied in that passage.

A microwave oven is a kitchen appliance employing microwave radiation primarily to cook or heat food. Microwave ovens have revolutionized cooking since their use became widespread in the 1970s.

Cooking food with microwaves was discovered by Percy Spencer while building magnetrons for radar sets at Raytheon. He was working on an active radar set when he noticed a strange sensation, and saw that a peanut candy bar he had in his pocket started to melt. Although he was not the first to notice this phenomenon, as the holder of 120 patents, Spencer was no stranger to discovery and experiment, and realized what was happening. The radar had melted his candy bar with microwaves. The first food to be deliberately cooked with microwaves was popcorn, and the second was an egg (which exploded in the face of one of the experimenters). In North America, microwave popcorn is now one of the most commonly cooked items in microwave ovens, virtually to the exclusion of other home cooking methods such as hot air and oil popping. Most microwaves sold in North America today have a specific "popcorn button" which is solely used to cook premeasured packages of popcorn, ostensibly to make it easier for consumers to microwave popcorn without worrying about burning it or leaving a lot of kernels unpopped. The standard time for the "popcorn" setting on most microwaves is about three minutes.

On 8 October 1945 Raytheon filed a patent for Spencer's microwave cooking process and in 1947; the company built the first microwave oven, the Radarange. It was almost 6 feet (1.8 m) tall and weighed 750 pounds (340 kg). It was water-cooled and produced 3000 watts, about three times the amount of radiation produced by microwave ovens today. An early commercial model introduced in 1954 generated 1600 watts and sold for \$2,000 to \$3,000. Raytheon licensed its technology to the Tappan Stove company in 1952. They tried to market a large, 220 volt, wall unit as a home microwave oven in 1955

for a price of \$1,295, but it did not sell well. In 1965 Raytheon acquired Amana, which introduced the first popular home model, the countertop Radarange in 1967 at a price point of \$495.

In the 1960s, Litton bought Studebaker's Franklin Manufacturing assets, which had been manufacturing magnetrons and building and selling microwave ovens similar to the Radarange. Litton then developed a new configuration of the microwave, the short, wide shape that is now common. The magnetron feed was also unique. This resulted in an oven that could survive a no-load condition indefinitely. The new oven was shown at a trade show in Chicago, and helped begin a rapid growth of the market for home microwave ovens. Sales figures of 40,000 units for the US industry in 1970 grew to one million by 1975. Market penetration in Japan, which had learned to build less expensive units by re-engineering a cheaper magnetron, was more rapid.

A number of other companies joined in the market, and for a time most systems were built by defense contractors, who were the most familiar with the magnetron. Litton was particularly well known in the restaurant business. By the late 1970s the technology had improved to the point where prices were falling rapidly. Formerly found only in large industrial applications, "microwaves" were increasingly becoming a standard fixture of most kitchens. The rapidly falling price of microprocessors also helped by adding electronic controls to make the ovens easier to use. By the late 1980s they were almost universal, and current estimates hold that nearly 95% of American households have a microwave.

A microwave oven works by passing microwave radiation, usually at a frequency of 2450 MHz (a wavelength of 12.24 cm), through the food. Water, fat, and sugar molecules in the food absorb energy from the microwave beam in a process called dielectric heating. Most molecules are electric dipoles, meaning that they have a positive charge at one end and a negative charge at the other, and therefore vibrate as they try to align themselves with the alternating electric field induced by the microwave beam. This molecular movement creates heat. Microwave heating is most efficient on liquid water, and much less so on fats, sugars, and frozen water. Microwave heating is sometimes incorrectly explained as resonance of water molecules, which only occurs at much higher frequencies, in the tens of gigahertz. Most microwave ovens allow the user to choose between several power levels, including one or more defrosting levels. In most ovens, however, there is no change in the intensity of the microwave radiation; instead, the magnetron is turned on and off in cycles of several seconds at a time. This can actually be observed when microwaving airy foods like Krembos (An Israeli confection): it blows up during heating phases, while it deflates when the magnetron is turned off.

The cooking chamber itself is a Faraday cage enclosure which prevents the microwaves from escaping into the environment. The oven door is usually a glass panel for easy viewing, but has a layer of conductive mesh to maintain the shielding. Because the size of the perforations in the mesh is much less than the wavelength of 12 cm, the microwave radiation can not pass through the door, while visible light (with a much shorter wavelength) can.

Professional chefs generally find microwave ovens to be of limited usefulness. On the other hand, people who are lacking in free time, or not comfortable with their cooking skills, can use microwave ovens to reheat stored food (including commercially available pre-cooked frozen dishes) in only a few minutes.

- 31.** The central theme of the passage is
 1. The Technique of Microwave Cooking.
 2. Microwave Technology in Ovens.
 3. Commercial Microwave Ovens and its Uses.
 4. The Discovery, Development, and Uses of Microwave Ovens.
- 32.** According to the passage, it can be inferred that
 1. the microwave revolution became widespread in the 1970s.
 2. the microwave technique of cooking was more of an 'accidental discovery'.
 3. Spencer holds the highest number of technology patents.
 4. popcorn is the most popular snack in America.
- 33.** According to the passage:
 1. In most ovens, the intensity of the microwave radiation cannot be altered.
 2. Fats and sugars are best cooked by microwave ovens.
 3. Microwave heating is the vibration of water molecules.
 4. None of these

- 34.** According to the passage
1. Amana's countertop Radarange priced at \$495 was the most popular model.
 2. hot air and oil popping methods of cooking popcorn are still used.
 3. microwave ovens were fitted with easy-to-use electronic controls due to the availability of cheaper microprocessors.
 4. Japan manufactures the highest number of microwave ovens.
- 35.** Litton's new microwave oven
1. resembled the one that is used commonly now.
 2. had a unique magnetron feed.
 3. could work on the no-load condition indefinitely.
 4. All of the above.

Section B - Quant:

No. Of Questions: 10

Time: 30 minutes

- 1.** The number of factors of 25! is
 1. $69 \times 77 \times 64$ 2. $7 \times 97 \times 63$ 3. $64 \times 75 \times 22$ 4. None of these
- 2.** Let $P = \sqrt{a} \cdot \sqrt[3]{a} \cdot \sqrt[4]{a} \cdot \sqrt[5]{a} \cdot \sqrt[6]{a} \dots$ where a is a positive real number. What is the value of P?
 1. $P=2a$ 2. $P=a$ 3. $P=\sqrt{a}$ 4. None of these
- 3.** A camel runs at 24kmph when it is not carrying any load. Its speed reduces when it is loaded with weight. The reduction in speed is directly proportional to the square root of the weight (in kg) it is carrying. If the speed of camel when it is carrying 25kgs is 15kmph what is the maximum weight that it can carry?
 1. 175kgs 2. 177kgs 3. 178kgs 4. 180kgs
- 4.** A train named Kisan Express leaves Delhi for Bangalore and Bangalore for Delhi everyday at 12 noon and reaches the destination after 4 days at 2 p.m. How many trains by the same name will it meet on the way?
 1. 4 2. 7 3. 8 4. 9
- 5.** How many 4 digit numbers contain number 2.
 1. 3170 2. 3172 3. 3174 4. 3168
- 6.** $161?85?65?89 = 100$, then use + or - in place of ? and take + as m, - as n then find value of m-n.
 1. 1 2. -1 3. 0 4. none
- 7.** A dishonest dealer professes to sell his goods at the cost price but uses a weight of 800gm instead of 1kg. Find his real gain percent.
 1. 25% 2. 20% 3. 30% 4. None of these
- 8.** Mohan is having 190 coins of one rupee. He wants to put them in different bags such that he can hand over the cash of any denomination required between Rs.1 to Rs.190 without actually counting the number of coins in the bags. What is the least number of bags required?
 1. 11 2. 12 3. 13 4. 14
- 9.** Two buildings of equal length start sinking into the ground at the same time at a uniform rate. One of the buildings will take 16 days and the other 24 days to sink completely. After how many days will the length of the portion above the ground of one of the building be exactly twice the other building?
 1. 6 2. 8 3. 12 4. 10

- 10.** Ram and Sham take a vacation at their grandparents' house. During the vacation, they do any activity together. They either played tennis in the evening or practiced Yoga in the morning, ensuring that they do not undertake both the activities on any single day. There were some days when they did nothing. Out of the days that they stayed at their grandparents' house, they involved in one of the two activities on 22 days. However, their grandmother while sending an end of vacation report to their parents stated that they did not do anything on 24 mornings and they did nothing on 12 evenings. How long was their vacation?
1. 36 days 2. 14 days 3. 29 days 4. Can't be determined

Section C - Reasoning:

No. Of Questions: 15

Time: 20 minutes

Directions for Questions 1 - 5: Read the following data and answer the questions

In a boy's hostel there are 100 rooms. There are 100 students in that hostel. On an occasion of holiday all the students left the hostel and went to their homes. When they returned it was observed that they entered the hostel one by one. The student who entered first opened the door of all the rooms. Note that each room was assigned a number from 1 to 100. When the second student entered the hostel, he closed the door of every second room. When the third student entered, he operated every third door, i.e., if any door was opened he closed it and if he found it closed he opened it. So did the fourth student with every fourth door, the fifth student with every fifth door, and so on up to 100th student. When the 100th student did his operation the process stopped. Now answer the questions:

- 1.** At the end of the process which of the following doors was open?
1. 80th 2. 75th 3. 68th 4. 100th
- 2.** At the end of the process which of the following doors was/were closed?
1. 18th 2. 48th 3. 23rd 4. All three.
- 3.** Find the odd man out. 64th door, 16th door, 81st door, 96th door, 100th door
1. 96th door 2. 81st door 3. 16th door 4. 64th door.
- 4.** When 50th student had done his job what was the situation of the 96th door?
1. It was open 2. It was closed 3. Can't say 4. None of these
- 5.** When 25th student had done his job what was the situation of 88th door?
1. It was open 2. It was closed 3. Can't say 4. None of these

Directions for questions 6 - 10: Each question is followed by two statements, I and II. Mark the answer

1. If the question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.
 2. If the question can be answered by using either statement alone.
 3. If the question can be answered by using both statements together, but cannot be answered using either statement alone.
 4. If the question cannot be answered even by using both statements together.
- 6.** What is the sum of 2 numbers?
I. The LCM of the numbers is 51. II. One of the numbers is 17.
 - 7.** What are the distinct integers A and B?
I. The product of A and B is 4. II. A and B are both positive.
 - 8.** LCM of 2 numbers is 630. What is the absolute difference between them?

- I. HCF is 9. II. The sum of the 2 numbers is 153.

9. Is $(a^2 - b^2)$ even?

- I. $(a + b)$ is odd. II. $(a - b)$ is odd.

10. If a , b and c are integers, is $3(a + b) + c$ divisible by 3?

- I. $(a + b)$ is divisible by 3. II. c is divisible by 3.

11. F: 216 : : L: ?

1. 1700 2. 1600 3. 1723 4. 1728

12. If $264 * 2 = 6$, $870 * 3 = 11$, then what should $735 * 5$ be?

1. 16 2. 03 3. 05 4. 12

13. Statements : All fish are trees. No frog is tree.

Conclusions : I. No frog is fish.

II. Some trees are fish.

1. If only conclusion I follows
2. If only conclusion II follows
3. If both conclusions follow
4. If neither of the two conclusions follows

DIRECTIONS for question 14: In each of these questions, a statement is followed by two courses of action numbered I and II. Assume everything in the statement to be true. Decide which of the suggested course(s) of action logically follow(s) for pursuing. Mark answer as

1. if only Course of Action II follows.

2. if only Course of Action I follows.

3. if neither Course of Action I nor II follows.

4. if both Courses of Action I and II follow

1. Statement:

The government has decided not to provide financial support to voluntary organizations from the next Five Year Plan and has communicated that all such organizations should raise funds to meet their financial needs.

Courses of Action

- I. Voluntary organizations should collaborate with foreign agencies.
II. They should explore other sources of financial support.

15. USA + USSR = PEACE ; P + E + A + C + E = ?

1. 13 2. 10 3. 11 4. 12