CAT 2016 VARC Slot 1 Question Paper

Time Allowed :3 Hours	**Maximum Marks :**390	**Total questions :**130

General Instructions

Read the following instructions very carefully and strictly follow them:

1. **Duration of Section:** 40 Minutes
2. **Total Number of Questions:** 22 Questions (as per latest pattern, may vary slightly)
3. **Section Covered:** Quantitative Aptitude (QA)
4. **Type of Questions:**
   - Multiple Choice Questions (MCQs)
   - Type In The Answer (TITA) Questions – No options given, answer to be typed in
5. **Marking Scheme:**
   - +3 marks for each correct answer
   - -1 mark for each incorrect MCQ
   - No negative marking for TITA questions
6. **Syllabus Coverage:** Arithmetic, Algebra, Geometry, Number System, Modern Math, and Mensuration
7. **Skills Tested:** Numerical ability, analytical thinking, and problem-solving

1. Arrange the sentences A, B, C, and D to form a logical sequence between sentences 1 and 6.

1. Amount of published information available varies widely by industry.

A. Unfortunately for the researcher, many industries do not meet these criteria, and there may be little published information available.

B. Generally, the problem the researcher will face in using published data for analysing an economically meaningful industry is that they are too broad or too arranged to fit the industry.

C. However, it is always possible to gain some important information about an industry from published sources and these sources should be aggressively pursued.

D. Larger the industry, the older it is, and the slower the rate of technological change, better is the available published information.

6. If a researcher starts a searching for data with this reality in mind, the uselessness of broad data will be better recognized and the tendency to give up will be avoided.

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2. Arrange the sentences A, B, C, and D to form a logical sequence between sentences 1 and 6.

1. The main source of power in industrial undertaking is electricity.

A. Electricity from water also requires enormous river valley projects involving huge expenditure.

B. In contrast, electricity from atomic power stations will result in a tremendous saving in expenditure.

C. Besides, the mineral resources of the world required for generation of electricity are being rapidly depleted.

D. But the production of electricity needs huge quantities of coal.

6. The installation of atomic plants will help in meeting the shortage of these resources.

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3. Arrange the sentences A, B, C, and D to form a logical sequence between sentences 1 and 6.

1. Intensity of competition in an industry is neither a matter of coincidence nor bad luck.

A. The collective strength of these forces determines the ultimate profit potential in the industry where profit potential is measured in terms of long run returns on invested capital.

B. Rather, competition in an industry is rooted in its underlying economic structure and goes well beyond the behavior of current competitors.

C. Not all industries have the same potential.

D. Beyond the behavior of current competitors, there are five basic competitive forces which determine the intensity of competition in an industry.

6. Different industries can sustain different levels of profitability depending upon these forces.

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4. A number of sentences are given below which, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. However, one of the statements is illogically placed. Choose the illogically placed sentence from among the five given choices so that the remaining four can construct a coherent paragraph.

A. It is turning off the tap.

B. And with no consensus of the exit policy, the government is damned if it supports loss-making units and damned if it doesn't.

C. The private sector did the same in the past because securing legal sanction for closure was virtually impossible.

D. After sûrement years of funding the losses of public sector companies, the government is doing the unthinkable.

E. Private sector and public sector companies act in a similar fashion when in crisis.

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5. A number of sentences are given below which, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. However, one of the statements is illogically placed. Choose the illogically placed sentence from among the five given choices so that the remaining four can construct a coherent paragraph.

A. Trade protocols were signed, the dollar as the medium of exchange was ignored, trade was denominated in rupees and the exchange rate between the two countries was to be fixed outside the ambit of free markets.

B. A young India, some years after independence fashioning her foreign policy of nonalignment, found it prudent to stay close to the former Soviet Union.

C. Therefore it led to the escalation of cold war between Soviet Union and the U.S.A.

D. Once upon a time there was a superpower named Soviet Union that attracted nations

apprehensive of the global aspirations of the other superpower, the U.S.A.

E. One way of doing this was to evolve a bilateral relations in trade that could be called upon provide a buffer against the arm-twisting by the U.S.A

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6. A number of sentences are given below which, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. However, one of the statements is illogically placed. Choose the illogically placed sentence from among the five given choices so that the remaining four can construct a coherent paragraph.

A. There are also a larger number of Lebanese restaurants in Paris than there are in other European capital cities

B. French Cordon Bleu cuisine is very expensive

C. The number of French tourists eating in New York burger restaurants is very low

D. Junk food is actually has high nutritional value when eaten in moderation

E. There are an unusually large number of American tourists in Paris who eat at burger joints

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7. Evidence has been presented that the unconscious mind, still viewed by many psychological scientists as the shadow of a "real" conscious mind, is identifiably more deliberate, action oriented and complex than its conscious counterpart. Furthermore researchers have proven that the mind is incredibly efficient at extracting meaning from stimuli of which one is not consciously aware. The claims above are made on conclusive experimentations in which test subjects who were allowed to sleep during a decision making process made more optimal decisions when compared to the subjects who were given the exact same amount of information but were not allowed to sleep, leading researchers to believe that rationality comes on the way of making a rational decision. Researchers explain that while the conscious mind can only follow strict rules, unconscious mind can handle and integrate a larger amount of information, explaining why it can make better decisions. Even more surprising than this unconscious mind's ability is that the mental processes that drive such decision making are necessarily minimal and unsophisticated and do not require humongous amount of calories to make us arrive at the best decision whereas using conscious mind for complex decisions burns up a lot of energy, setting in fatigue, forcing the conscious mind to give up and leading to subconscious decisions. Overall, researchers agree that there is no need to

have sleepless night pondering over a complex issue to resolve it when it can actually be solved more efficiently by snoring the night away.

(A) highlight the differences among psychologists regarding the importance of the unconscious mind in making complex decisions.

(B) contrast and compare the workings of the rationality with that of deliberate, action-oriented, and complex decision-making processes.

(C) prove that the unconscious mind is more effective than the conscious mind in complex decision-making.

(D) show that conscious mind is not that undependable as previously thought.

(E) ascertain that using conscious and unconscious minds together yield second-to-none judgements.

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8. French cuisine is highly regarded all over the world. Yet in Paris there are more American restaurants selling burgers and fries (which many people now class as junk food) than there are in any other European capital city. Obviously the French are very fond of junk food, and are not too proud to eat it. Which of the following, if true, would most weaken the author's contention?

(A) There are also a larger number of Lebanese restaurants in Paris than there are in other European capital cities.

(B) French Cordon Bleu cuisine is very expensive.

(C) The number of French tourists eating in New York burger restaurants is very low.

(D) Junk food actually has high nutritional value when eaten in moderation.

(E) There are an unusually large number of American tourists in Paris who eat at burger joints.

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9. In research designed to investigate the possibility of animals developing friendship with other, unrelated, members of their species, a group of 29 chimpanzees were reared together for 15 years. At the end of that time the chimps were presented with two options for obtaining food: press a lever and feed themselves, or press another identical lever and feed themselves, and at the same time deliver food to the chimp next door. (The chimps were able to see each other). The researchers found that the chimps were no more likely to choose the lever that fed a neighbour. The researchers concluded that

the chimps had no concept of friendship. However, one critic has suggested that the animals were in an artificial environment from which little can be concluded, and that, at the least, the test ought to have involved the animals being able to touch.
What role do the parts in boldface play in the argument above?

(A) The first is a position that the critic opposes. The second is a position that the critic supports.

(B) The first is an observation that supports the researcher's position. The second is an observation that opposes the researcher's position.

(C) The first is a finding on which the researchers base their conclusion. The second is a suggestion that might cast doubt on that finding.

(D) The first is an observation that supports the critic's conclusion. The second is the critic's conclusion.

(E) The first is part of the evidence that the critic disputes. The second is a suggestion that the researchers do not accept.

Passage: (Q10 - Q15)

A conservation problem equally as important as that of soil erosion is the loss of soil fertility. Most agriculture was originally supported by the natural fertility of the soil; and, in areas in which soils were deep and rich in minerals, farming could be carried on for many years without the return of any nutrients to the soil other than those supplied through the natural breakdown of plant and animal wastes. In river basins, such as that of the Nile, annual flooding deposited a rich layer of silt over the soil, thus restoring its fertility. In areas of active volcanism, such as Hawaii, soil fertility has been renewed by the periodic deposition of volcanic ash. In other areas, however, natural fertility has been quickly exhausted. This is true of most forest soils, particularly those in the humid tropics. Because continued cropping in such areas caused a rapid decline in fertility and therefore in crop yields, fertility could be restored only by abandoning the areas and allowing the natural forest vegetation to return. Over a period if time, the soil surface would be rejuvenated by parent materials, new circulation channels would form deep in the soil, and the deposition of forest debris would restore minerals to the topsoil. Primitive agriculture in such forests was of shifting nature: areas were cleared of trees and the woody material burned to add ash to the soil; after a few

years of farming, the plots would be abandoned and new sites cleared. As long as populations were sparse in relation to the area of forestland, such agricultural methods did little harm. They could not, however, support dense populations or produce large quantities of surplus foods.

Starting with the most easily depleted soils, which were also the easiest to farm, the practice of using various fertilizers was developed. The earliest fertilizers were organic manures, but later, larger yields were obtained by adding balanced combinations of those nutrients (e.g. potassium, nitrogen, phosphorus and calcium) that crop plants require in greatest quantity. Because high yields are essential, most modern agriculture depends upon the continued addition of chemical fertilizers to the soil. Usually these substances are added in mineral form, but nitrogen is often added as urea, an organic compound.

Early in agricultural history, it was found that the practice of growing the same crop year after year in a particular plot of ground not only caused undesirable changes in the physical structure of the soil, but also drained the soil of its nutrients. The practice of crop rotation was discovered to be a useful way to maintain the condition of the soil, and also to prevent the buildup of those insects and other plant pests that are attracted to a particular kind of crop. In rotation systems, a grain crop is often grown the first year, followed by a leafy vegetable crop in the second year, and pasture crop in the third. The last usually contains legumes (e.g. clover, alfalfa), because such plants can restore nitrogen to the soil through the action of bacteria that live in nodules on their roots.

In irrigation agriculture, in which water is brought in to supply the needs of crops in an area with insufficient rainfall, a particular soil-management problem that develops is the salinization (concentration of salts) of the surface soil. This most commonly results from inadequate drainage of the irrigated land; because the water cannot flow freely, it evaporates, and the salts dissolved in the water are left on the surface of the soil. Even though the water does not contain a large concentration of dissolved salts, the accumulation over the years can be significant enough to make the soil unsuitable for crop production. Effective drainage solves the problem; in many cases, drainage canals must be constructed, and drainage tiles must be laid beneath the surface of the soil. Drainage also requires the availability of an excess of water to flush the salts from the surface soil. In certain heavy soils with poor drainage, this problem can be quite severe; for example, large areas of formerly irrigated

land in the Indus basin, in the Tigris Euphrates region, in the Nile Basin, and in the Western United States, have been seriously damaged by salinization.

10. The areas most prone to salinization are

(A) those irrigated with well-water.

(B) those in which crop rotation is not practiced.

(C) sub-tropical forests.

(D) flat land irrigated from reservoirs.

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11. The most appropriate title to this passage is

(A) Problems of soil erosion

(B) Agriculture in Volcanic islands

(C) The importance of chemical fertilizers

(D) Causes of and remedies of soil-infertility

Quick Tip

Choose a title that encompasses both the problem (causes) and solutions discussed in the passage, not just a single aspect.

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12. Natural fertility exhausts most quickly in

(A) river valley lands

(B) humid tropical forests

(C) volcanic areas

(D) lands near urban areas

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13. The factor that can restore fertility to the soil not mentioned in the passage is

(A) alluvium brought by rivers

(B) bacterial action

(C) fertilizer fixation through lightning

(D) organic manure

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14. Crop rotation helps to I. increase the farmer's seasonal income. II. preserve soil condition. III. desalinize the soil. IV. destroy pests.

(A) I, II, III IV

(B) I, II IV only

(C) II IV only

(D) II, III IV only

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15. One of the characteristics of agricultural land in Nile basin is

(A) it contains a lot of bacteria.

(B) it consists of heavy soil with poor drainage properties.

(C) the Nile water contains an excess of salts.

(D) it contains nutritive minerals.

Passage: (Q16 - Q20

Scientism has left humanity in our technical mastery of inanimate nature, but improvised us in our quest for an answer to the riddle of the universe and of our existence in it. Scientism has done worse than that with respect to our status as social beings, that is, to our life with our fellow human beings. The quest for the technical mastery of social life, comparable to our mastery over nature, did not find scientism at a loss for an answer: reason suggested that physical nature and social life were fundamentally alike and therefore proposed identical methods for their domination. Since reason in the form of causality reveals itself most plainly in nature, nature became the model for the social world and the natural sciences the image of what the social sciences one day would be. According to scientism, there was only one truth, the truth of science, and by knowing it, humanity would know all. This was, however, a fallacious argument, its universal acceptance initiated an intellectual movement and a political technique which retarded, rather than furthered, human mastery of the social world The analogy between the natural and social worlds is mistaken for two reasons. On the one hand human action is unable to model the social world with the same degree of technical perfection that is possible in the natural world. On the other hand, the very notion that physical nature is the embodiment of reason from which the analogy between natural and social worlds derives, is invalidated by modern scientific thought itself.

Physical nature, as seen by the practitioner of science consists of a multitude of isolated facts over which human action has complete control. We know that water boils at a temperature of 212 degrees Fahrenheit and, by exposing water to this temperature, we can make it boil at will. All practical knowledge of physical nature and all control over it are essentially of the same kind.

Scientism proposed that the same kind of knowledge and of control held true for the social world. The search for a single cause, in the social sciences, was but a faithful copy of the method of the physical sciences. Yet in the social sphere, the logical coherence of the natural sciences finds no adequate object and there is no single cause by the creation of which one can create a certain effect at will. Any single cause in the social sphere can entail an indefinite number of different effects, and the same effect can spring from an indefinite number of different effects, and the same effect can spring from an indefinite number of different causes.

16. The author's attitude towards the application of scientism to the social sciences is best described as one of

(A) committed scrutiny

(B) dismissal

(C) criticism

(D) approval

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17. According to the author, causes and effects in the social world are

(A) unrelated to each other

(B) difficult to identify or predict

(C) subject to manipulation at will

(D) reducible to a single cause for each effect

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18. Which of the following statements about scientism is best supported by the passage?

(A) Scientism provides the basis for mastery of the social world

(B) Scientism is only superficially concerned with cause-and-effect relationships

(C) Scientism is poorly suited to explain social behaviour

(D) Scientism is no longer applicable to the study of the natural sciences

19. As used in the passage, the term 'scientism' can best be defined as

(A) belief that the methods of the physical sciences can be applied to all fields of enquiry

(B) faith that human beings can master their own physical limitations

(C) desire to keep the social sciences separate from the physical sciences

(D) opinion that scientists must take moral responsibility for their actions

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20. In the passage, the author is most concerned with doing which of the following?

(A) Upholding the primacy of reason over superstition

(B) Attacking a particular approach to the social sciences

(C) Describing a method for achieving control over human social behaviour

(D) Demonstrating the superiority of the social sciences over the natural sciences

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21. The passage is most likely directed towards an audience of

(A) geologists

(B) astronauts

(C) meteorologists interested in weather prediction

(D) person with little technical knowledge of astronomy

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22. Which of the following best describes the main subject of the passage?

(A) The various types of the Earth's motions

(B) Past changes in the Earth's position

(C) The moon's gravitational effect on the Earth

(D) Oddities of the Earth's rotation of its axis

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23. The passage indicates that a single cycle of which of the following motions is completed in the shortest period of time?

(A) Nutation

(B) Precession

(C) The Earth's rotation on its axis

(D) The movement around the hub of the Milky Way

24. Which of the following techniques does the author use in order to make the descriptions of motion clear? I. Comparison with familiar objects.

II. Reference of geometric forms.

III. Allusions to the works of other authors.

(a) I only

(b) II only

(c) I and II only

(d) II and III only

Passage: Q25 - Q28

The connective tissues are heterogeneous group of tissues derived from the mesenchyme, a meshwork of stellate cells that develop in the middle layer of the early embryo. They have the general function of maintaining the structural integrity of organs, and providing cohesion and internal support for the body as a whole. The connective tissues include several types of fibrous tissue that vary only in their density and cellularity, as well as more specialized variants ranging from adipose tissue through cartilage to bone. The cells that are responsible for the specific function of an organ are referred to as it parenchyma, while the delicate fibrous meshwork that blinds the cells together into functional units, the fibrous partitions or septa that enclose aggregations of functional units, and the dense fibrous capsule that encloses the whole organ, collectively make up its connective-tissue framework, or stroma. Blood vessels, both large and small, course through connective tissues, which is therefore closely associated with the nourishment of tissues and organs throughout the body. All nutrient materials and waste products exchanged between the organs and the blood must traverse peri-vascular spaces occupied by connective tissue. One of the important functions of the connective – tissue cells is to maintain conditions in the extra-cellular spaces that favour this exchange

Some organs are suspended from the wall of a body cavity by thin sheets of connective tissues called mesenteries; others are embedded in adipose tissue a form of a connective tissue in which the cells are specialized for the synthesis and storage of energy-rich reserves of fat, or lipid. The entire body is supported from within by a skeleton composed of bone, a type of connective tissue endowed with great resistance to stress owing to its highly ordered,

laminated structure and to its hardness, which results from deposition of mineral salts in its fibres and amorphous matrix. The individual bones of the skeleton are held firmly together by ligaments, and muscles are attached to bone by tendons, both of which are examples of dense connective tissue in which many fibre bundles are associated in parallel array to provide great tensile strength. At joints, the articular surfaces of the bones are covered with cartilage, a connective tissue with an abundant intercellular substance that gives it a firm consistency well adopted to permit smooth gliding movements between the opposed surfaces. The synovial membrane, which lines the margins of the joint cavity and lubricates and nourishes the joint surfaces, is also a form of connective tissue.

25. The passage has most probably been taken from a book on

(A) neurology

(B) nutrition

(C) physiology

(D) calisthenics

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26. Mesenteries are

(A) adipose tissue in which some organs are embedded

(B) referred to as parenchyma, and are responsible for specific functions of an organ

(C) thin sheets from which some organs are suspended

(D) cells through which blood flows

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27. Through peri-vascular spaces exchange takes place between

(A) blood and organs

(B) cells and embryo

(C) nutrients and waste products

(D) septa and stroma

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28. Some instances of connective tissues are I. Cartilage II. Stroma III. Lipid IV. Synovia

(A) I, II, III IV

(B) I, III IV only

(C) I, II, IV only

(D) I and II only

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29. In his study of suicide, Durkheim's main purpose was

(A) to document that suicide can be explained without reference to the individual

(B) to provide an explanation of the variation in the rate of suicide across societies

(C) to categorize various types of suicides

(D) to document that social behavior can be explained by social rather than psychological factors

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30. Single adults not heavily involved with family life are more likely to commit suicide. Durkheim categorized this as

(A) anomic suicide

(B) altruistic suicide

(C) egoistic suicide

(D) Both (B) and (C)

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31. According to Durkheim, suicide rates within a social entity can be explained in terms of

(A) absence of social ties

(B) disruption of social regulation

(C) nature of social integration

(D) All of the above

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32. Basing himself on his own indicators, Durkheim was

(A) right on some counts, not others

(B) vindicated on all counts

(C) wrong but did not realize that he was right

(D) substantially correct but formally wrong

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33. To support his contentions, Durkheim relied on the following indicators

(A) social behaviour is explicable predominantly through social factors

(B) suicide is contingent upon the degree of regulation and interaction

(C) recognizing sociology is to acknowledge that society is susceptible to scientific investigation

(D) All of the above
