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GICE ACADEMY
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DREAM-WORK-ACHIEVE

TEST FORM NUMBER

Maximum Marks : 198
Total Questions : 66
Time Allowed : 120 Min.

INSTRUCTIONS TO CANDIDATE

Read the following instructions carefully before you begin to attempt the questions.

(1) This booklet contains **66 Questions** in all comprising the following **Three** parts.
 Part-(I) : VARC   **(24 Questions)**
 Part-(II) : LRDI   **(20 Questions)**
 Part-(III) : Quantitative Aptitude   **(22 Questions)**

(2) All the questions are compulsory and carry equal marks.

(3) Before you start to attempt the questions, you must explore this booklet and ensure that it contains all the pages and find that no page is missing or replaced. If you find any flaw in this booklet, you must get it replaced immediately.

(4) **The MCQ type has a negative marking of 1 for every wrong answer. The TITA questions have no negative marking.**

(5) You will be supplied the Answer-sheet separately by the invigilator. You must complete the details of Name, Roll number, Test name/Id and name of the examination on the Answer-Sheet carefully before you actually start attempting the questions. You must also put your signature on the Answer-Sheet at the prescribed place. These instructions must be fully complied with, failing which, your Answer-Sheet will not be evaluated and you will be awarded 'ZERO' mark.

(6) Answer must be shown by completely blackening the corresponding circles on the Answer-Sheet against the relevant question number by **pencil or Black/Blue ball pen** only.

(7) A machine will read the coded information in the OMR Answer-Sheet. In case the information is incompletely/ different from the information given in the application form, the candidature of such candidate will be treated as cancelled.

(8) The Answer-Sheet must be handed over to the Invigilator before you leave the Examination Hall.

(9) Failure to comply with any of the above Instructions will make a candidate liable to such action/penalty as may be deemed fit.

(10) Answer the questions as quickly and as carefully as you can. Some questions may be difficult and others easy. Do not spend too much time on any question.

(11) Mobile phones and wireless communication device are completely banned in the examination halls/rooms. Candidates are advised not to keep mobile phones/any other wireless communication devices with them even switching it off, in their own interest. Failing to comply with this provision will be considered as using unfair means in the examination and action will be taken against them including cancellation of their candidature.

(12) No rough work is to be done on the Answer-Sheet.

(13) No candidate can leave the examination hall before completion of the exam.

NAME OF CANDIDATE:...

DATE :...................... CENTRE CODE :.......................

ROLL No ....

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO

VARC

(Instruction for questions 1 to 4:)

Direction for Reading Comprehension: The passage given here is followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage.

David Bloom and David Canning, together with Mark Weston, an independent policy consultant, have looked at two vaccination programmes and attempted to calculate the wider benefits. Their conclusions have just been published in the World Economics. The first benefit was that healthy children are more likely to attend school and better able to learn. The second was that healthy workers are more productive. Both of these seem fairly obvious. Two other benefits, however, are less so. One being that good health promotes savings and investments. This is because healthy people both expect to live longer and actually do live longer. The other being that good health—and particularly, expectations about the good health of one's offspring – promotes the so – called demographic transition from large to small families that usually accompanies economic development. None of these factors, the researchers thought, had been properly taken account of in previous estimates of the cost – effectiveness of vaccination.

To demonstrate that at least one of their ideas was correct, they turned to the Philippines. Here, a study called the Cebu Longitudinal Health and Nutrition Survey has been going on since 1983. It follows the lives of Filipina mothers and those of their children born in 1983 and 1984. Among the data collected were the records of the vaccinations these children received as infants and also their scores in language, maths and IQ tests at the age of ten. The three researchers organized children whose social circumstances were similar into groups, depending on whether or not the children had been vaccinated against a range of diseases including measles, polio and tuberculosis. They then compared test scores between groups. They found a statistically significant difference in the language and IQ scores between otherwise comparable vaccinated and unvaccinated children. In both cases, those of the unvaccinated were lower. Since it is known for the other studies that these scores are good predictors of adult income, the researchers concluded that childhood vaccination would have significant economic benefits.

In order to predict those benefits, they turned to vaccination campaign that is just beginning. The programme is scheduled to cost 13 bn dollars. First, the researchers used data from previous vaccination programmes to estimate both the reduction in mortality and the improvement in the health of the living that might be expected to flow from the new GAVI programme. Then they combined these estimates with existing data about the economic effects of health improvement in these programmes in poor countries, in particular their effects on future income. Using standard accounting methods, they calculate that the new GAVI programme can be expected to generate an immediate rate of return of 12.4%, rising to 18% by the end of the programme. And that does not include any benefits that might come from the demographic transition. The dispassionate economic case for vaccination, therefore, looks at least as strong as the compassionate medical one. If the figures produced by Dr Bloom, Dr Canning and Mr Weston are right, it truly is an investment for the future.

1. Which of the following can be considered as the appropriate links to establish the stated fact that "good health promotes saving and investment?"
   (A) Good health – better study potential – better qualification – more jobs – more earnings – more purchase of investible assets
   (B) Good health – higher performance levels – higher capacity to earn at present and in the future – higher income – higher saving – safe future and long life – higher investment
   (C) Good health – Happy living – disease free life – less medical expenses – saving of income – better investment potential
   (D) Good health – higher job opportunities – higher pay packages – higher sources of saving – better returns – higher investment potential

2. What is the tone of the passage?
   (A) Patronizing   **(B)** Introspective   **(C)** Analytical   **(D)** Speculative

3. In the context of the passage, the concept of demographic transition as associated with economic development can be understood as
   (A) People with higher income levels tend to have access to better medical facilities allowing them to have safe child birth which helps enhance the growth of child population
   (B) People expect their children to survive longer and so they do not seek better earning potential from expected survivors out of a large number of offsprings
   (C) Children born to parents who live longer are able to depend on them for a longer time period and can expect a better standard of living that is ensured by their productive parents.
   (D) People with a lower income as compared to others have trouble in maintaining a healthy lifestyle

4. According to the researchers, the link between good health and better capacity to perform indicates that
   (A) Metabolic activity of the healthy individuals allows their brains to react faster enabling them to make correct decisions in a comparatively less time.
   (B) Healthy individuals spend more of their earned income on enhancing a healthy living style and negligible hospital expenses
   (C) The possible inability to perform to the desired levels and ensure that effective outputs are generated is comparatively low in unhealthy individuals.
   (D) As compared to their compatriots, healthy individuals show better adaptability and agility in the tasks assigned to them as they can easily do overtime without feeling tired or lethargic

Instruction for questions 5 to 8:

Direction for Reading Comprehension: The passage given here is followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage.

For all the infinite variety of life on the planet, DNA is fairly uniform stuff. Humans share nearly all of their DNA with one another and a goodly chunk with worms and mice. Even subtler are the variances between the nucleotides that make up DNA. This quartet of molecules comprises adenine, cytosine, guanine, and thiamine, which are nearly identical, differing chemically by only a few atoms.

When the two complementary strands of a DNA molecule bond together, however, adenine unerringly picks out thiamine and guanine always bonds with cytosine. Thus far, scientists have relied on this phenomenon to work out the sequences of human genes by using fluorescent molecules that mimic natural nucleotides to pair up with existing strands.

Dr Branton and Dr Dreamer drew the concept for the detector from the operation of an ordinary cell membrane. This is made up of a double layer of fat molecules that is impermeable to charged particles. Protein channels studded in the membrane allow the cell to exchange select molecules through this barrier.

The team of researchers followed suit. They divided a dish into two with a lipid bilayer and placed a long, single strand of nucleotides (which, in nature, carries a negative charge) into one half of the dish. The researchers then employed an old foe, a bacterium called Staphylococcus aureus, to make a single channel, or nanopore, in the membrane. The microbe produces a protein that kills cells by puncturing their membranes. Though toxic to humans, the S. aureus protein was thus ideally suited for piercing a minute hole in the fat barrier.

With a flip of a switch, the researchers created a voltage bias across the artificial membrane, causing the negatively charged nucleotide chain to push its way through the pore towards the positive side of the dish. As each nucleotide flows through the nanopore, it generates a distinct current. The researchers hope that eventually these electrical signatures can be read off, one by one, in real time – as if the bases were flashing identity cards as they passed through a turnstile.

5.   Which of the following falls out of place as far as the passage is concerned?
      (A) DNA is not uniform and varies from creature to creature.
      (B) Protein channels contained in the cell's membrane allow the cell to exchange select molecules.
      (C) Staphylococcus aureus is toxic to human beings.
      (D) Charged particles cannot permeate through the double layer of cell membrane comprising fat molecules.

6.   The sequencing of human genes is
      (A) more of a fantasy than reality.
      (B) a matter of dispute calling for governmental intervention.
      (C) based on the bonding of the two complementary strands of a DNA molecule.
      (D) rift with hazards and dangers for humanity.

7.   The study of sequencing of human gene takes place through
      (A) a process which is chemical and metabolic.
      (B) the usage of fluorescent molecules which imitate natural nucleotides to pair with existing strands.
      (C) "matching" of the blood samples of various animals and human beings.
      (D) scientific interpolation and experimentation

8.   Which of the following would agree with what the author conveys through the passage?
      (A) The challenges before the researchers working on gene sequencing are administrative and non – technical in nature.
      (B) Sharing of DNA is not only among fellow humans but also among rodents and insects.
      (C) Gene sequencing is time consuming and is dependent on several assumptions.
      (D) All of the above.

Instruction for questions 9 to 12:
Direction for Reading Comprehension: The passage given here is followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage.

The cutting – edge science is ringing alarm bells. Avian flu virus picked up by pigs can swap genetic materials with another flu virus already in the pig and become a new, hitherto unknown flu virus for which no person, no animal has pre – existing immunity. The kind of virus causes a pandemic because it spreads from human to human.

If you took a peek into history, it turns out that previous influenza pandemics have similar scenarios. The greatest influenza pandemic in 1918 caused more than 20 million deaths of soldiers stationed in France. The last influenza pandemic was in 1968, known as the Hong Kong flu (H3N2). Thousands of deaths and millions were infected worldwide.

The other examples are the Nipah virus and Japanese Encephalitis virus, which find pigs to be good hosts. With JE, the virus circulates in the blood of infected pigs. When infected pigs are bitten by Culex mosquitoes, the virus replicates in the mosquito's gut. The next time the mosquito bites a human, the virus is passed on. The pig doesn't get sick as such. The Nipah virus causes pneumonia symptoms in pigs. In humans, it causes encephalitis, and humans catch it only with direct contact with infected pigs. Symptoms range from mild headache to permanent brain damage, and can be fatal.

It's merely a phenomenon of nature that the pig is the "mixing vessel" for the new germ. But make no mistake, the pig is not the villain, neither is the chicken. It's actually us, and our horrible farm practices, outdated agricultural policy and, most of all, reckless disregard of our ecology and environment. "Hygiene and management can control what eventually happens," says Lam. "Good farming practice will prevent serious outbreaks and infection to humans." Despite knowing that, animal diseases and the possibility of transmission to humans are becoming quite alarming. Of the 35 new emerging diseases in the last 20 years, more than 70 per cent involved animals.

In fact, what we may have done is unwittingly create the perfect launch pad for an influenza pandemic that will likely kill large numbers of people across the globe. Although scientists say it's impossible to predict the odds that the virus will alter its genetic form radically enough to start leaping from human to human, the longer HSN is out there killing chickens, the higher the chances are.

9.   Which of the following statement can be inferred from the passage?
      (A) New emerging diseases causes more deaths of human than animal.

(B) Animals are the villain for most flues.
(C) Hygiene and management cannot control the spread of viruses
(D) The current bird flu epidemic may be a launch pad for the next influenza pandemic

10.   Which of the following best describes the topic of the passage?
(A) What causes the Nipah virus and Japanese Encephalitis virus to happen?
(B) Does Hong Kong flu originate from pig?
(C) From fowl to pigs to humans?
(D) Is influenza pandemic horrible?

11.   All of the following situations are similar to the spread of the avian flu virus described in the first paragraph EXCEPT:
(A) The BT2 spread from a pig to another pig, and thus causes significant disease in pig.
(B) The AIDS viruses transferred from monkeys to man and spread across the world.
(C) Nipah virus circulates in the blood of infected pig, which is bitten by Culex mosquitoes the virus replicates in the mosquito's gut. The next time the mosquito bites a human, the virus is passed on
(D) H5N1 starts in chickens and leaps from human to human.

12.   According to the passage, what does the author mean by describing the pig as "mixing vessel"?
(A) Pig is the place where various viruses reside
(B) Pig is the pot in which viruses swap genes and become new, deadly germs
(C) Viruses are mixed inside the body of pig
(D) New germs come to the body of pig and reside there

Instruction for questions 13 to 16:
Direction for Reading Comprehension: The passage given here is followed by some questions that have four answer choices; read the passage carefully and pick the option whose answer best aligns with the passage.

Tim Barnard married when he was 25, fresh out of graduate school. His wife was a 21 – year – old college student. "At that age," recalled Barnard, now 36, "I didn't comprehend what it took to stay in a long – lasting relationship. It seemed that if you're in a serious relationship and you're committed to another person, the next logical step is to get married." Four years later, they were divorced. He got the credit – card debt and she got the washer and dryer. Barnard's marriage was typical of the many brief, early marriages that end in divorce by age 30, with no children and little more joint property than wedding gifts and a stereo. While couples in these marriages do not wed with the intention of divorcing, their temporary stay in marriage is much like the starter home of a generation ago, shed as the family outgrew it.
"The idea of a starter marriage is a fascinating one. These marriages are very common but they are not given much credibility." Marriage and family experts – psychologists, sociologists, lawyers and clergy – are beginning to look at these brief young unions, seeing in their implications a barometer of society's attitudes about marriage and divorce.
There is debate about how much people should pay in brief marriages without children. Margaret Mead recommended in the 1960s, that such unions be codified as "trial marriages Believing that it is the presence of children that should render a marriage lifelong, Mead described an alternative relationship that would last for a finite period, whereupon the couple would decide whether to have children and enter what she viewed as the more permanent stage of matrimony or not. Religious beliefs, too, tend to hold marriage as a linchpin of community and many churches and synagogues offer marital counselling. In the Roman Catholic Church, for instance, couples undergo pre – wedding counselling on the specifics of married life such as raising children and handling finances, said the Rev. Francis Muller a judge with the Marriage Tribunal of the Archdiocese of New York.
All marriages go through stages of evaluation, typically in the first year or two after marriage and again after seven years or so, said Dr. Anna Beth Benningfield, president of the American Association for Marriage and Family Therapy, a professional organisation of therapists. At these junctures, the challenges of one's 20s – living independently for the first time, beginning a career – can strain a marriage to the breaking point. Those who have been through young marriages point to the divorce – not the wedding as the real rite of passage of their 20s "Marriage is very easy, divorce is very hard." said Pachet.
Albano, the lawyer, speaks to high school classes about the need to communicate in a marriage, about changing gender roles of spouses and parents and about weathering the inevitable bad times. "They really don't know that there are going to be days when he's obnoxious or she's so tired, she can't deal with him or the fact that she may make more money than he does he said "The Church tells them marriages are made in heaven but so are thunder and lightning."

13.   Which of the following would best align with the passage?
(A) Starter marriages can bring in stability in the lives of married people
(B) Starter marriages do not require premarital counselling
(C) Starter marriages cause marriages to break, creating a split in the families
(D) Starter marriages, though common, are not given much credibility

14.   As per the passage, marriages which are short – lived, reflect…
(A) the immoral and irreligious lifestyle of today's generation.
(B) the lack of values in today's men and women.
(C) society's attitudes about marriage and divorce.
(D) the mismatch between expectations and fulfilments.

15.   Which of the following can be concluded from the passage?
(A) Marriages break up because of unrealistic expectations of the persons involved.
(B) The permanent state of matrimony is when children enter the lives of the married couple.
(C) Cohabitation has proved to be effective in curbing the divorce rate.
(D) To marry is easy but divorce is difficult.

16. "Marriage is easy but divorce is difficult." Going by the passage, this statement…

(A) Upheld   (B) Distorted   (C) Irrelevant   (D) Far – fetched

17. Directions for Summary: A paragraph is followed by four options which have summarized the passage in their own way. Pick the option that best summarizes the passage:

The number of people in the US serving life without parole (LWOP) sentences has increased 66 per cent since 2003. Germany outlawed LWOP in 1977, and in 2013 the European Court of Human Rights decided that Article 3 of the European Convention of Human Rights prohibited LWOP as a form of 'inhuman or degrading treatment or punishment'. Because of the barriers to getting parole, many life sentences are in fact LWOP sentences. Moreover, 'virtual life sentences' – those greater than 50 years – effectively condemn almost all those serving them to a life in prison. In 2016, more than 44,000 people in the US were serving virtual life sentences.

(A) It is unjust, cruel, and profoundly wasteful to consign a person to prison for life.

(B) Nothing can justify these harsh punishments and a decent society must not do it.

(C) It is not the severity of the punishment that deters but its likelihood.

(D) A person spending the rest of their life in prison doesn't change the person.

18. Directions for sentence exclusion: Five sentences are given below; out of these, four come together to form a coherent paragraph, but one sentence does not fit into the sequence. Choose the sentence that does not fit into the sequence.

1. They did not post any announcements or tell the villagers what they would be doing with those alms.

2. These student monks are usually from disadvantaged backgrounds who join the monastic life primarily for the free education it provides.

3. In 1977, when Thai monks first arrived in England to set up a temple, they went out each morning collecting alms as part of the regular routine of monastic discipline that they would have followed in Thailand.

4. Although the alms round appeared to be pointless, because they did not receive much sustenance from the practice, it demonstrated their commitment.

5. At first, they received nothing but stares and empty alms bowls. Eventually, their mindful and calm walking attracted followers, who, curious to know more, came to the temple to ask how they could support the monks.

(A) 1   (B) 2   (C) 3

(D) 4   (E) 5

19. Directions for Summary: A paragraph is followed by four options which have summarized the passage in their own way. Pick the option that best summarizes the passage:

Interest in the dreams of animals is nothing new. Nineteenth – century naturalists such as Charles Darwin wrote at length about the dreams of other species from an evolutionary perspective, often to drive home the point that our minds and those of our fellow nonhumans exist on a natural continuum. Other animals may not ponder deep, existential questions, but the fact that they dream proves that they possess formidable memories and complex imaginations, even if their dreams flow in and out of them, as Darwin says, 'without the aid of any form of language.' In 1892, two decades after the publication of The Descent of Man, the Spanish philosopher José Miguel Guardia had an article published in the French journal Revue philosophique de la France et de l'étranger in which, following Darwin, he maintained that other earthlings are as intimately acquainted with 'the metamorphoses of the nocturnal imagination' as we are.

1) Dreams hardly bear a witness to the sensibilité intrinsic to animal life.

2) Asleep, animals cannot renounce the real world to give themselves over to a phantasmatic universe

3) The psychic lives of nonhuman dreamers reveal colours, harmonies, and beauties of which we had little inkling until now

4) Humans are the only animals who rehearse virtual scenarios while taking their Zs

(A) 1   (B) 2   (C) 3   (D) 4

20. Four sentences that are a part of paragraph are given below; the sentences may or may not be in the right order; create the sequence that forms a coherent paragraph

1. (now known as oneiric behaviours) reveal what is happening in their dreams.

2. Complementing all this neuroscientific evidence is the behavioural side of the equation

3. When an animal displays rapid eye movements (REMs), sleep – vocalising, sleep – running and sleep – fighting, it is likely that said animal is thrusting itself onto a virtual reality in which these behaviours make sense.

4. For a long time, people from very different cultures have known that the behaviours of sleeping animals

(A) 1432   (B) 2341   (C) 4312   (D) 2413

21. Four sentences that are a part of paragraph are given below; the sentences may or may not be in the right order; create the sequence that forms a coherent paragraph

1. while 19th – century naturalists looked at animal behaviour with a focus on its psychological and physiological aspects

2. in the 1930s that the field returned to a focus on how social behaviour might be explained in evolutionary terms.

3. over the years, biologists have used a variety of lenses to try and answer these sorts of questions.

4. it was only after the ground – breaking work of zoologists such as Nikolaas Tinbergen and Karl von Frisch

(A) 1324   (B) 2134   (C) 3142   (D) 4231

22. Four sentences that are a part of paragraph are given below; the sentences may or may not be in the right order; create the sequence that forms a coherent paragraph

1. Born in 1902 – in the same suburb of Chicago as Hemingway, three years earlier – Rogers had a strict religious upbringing.

2. But in 1926, he crossed the road from Union Theological Seminary to Columbia University, and committed himself to psychology.

3. As a young man, he seemed destined for the ministry.

4. At this time, psychology was a field so new and so in vogue that, in 1919, during negotiations for the Treaty of Versailles, Sigmund Freud had secretly advised Woodrow Wilson's ambassador in Paris.

(A) 1423   (B) 2341   (C) 3124   (D) 1324

23. Directions for sentence exclusion: Five sentences are given below; out of these, four come together to form a coherent paragraph, but one sentence does not fit into the sequence. Choose the sentence that does not fit into the sequence

1. I fail in my attentions, again and again. But I tune back in, again and again. I believe it is working.

2. All of us, when we are our best selves, want to bring growth to the people we choose to give our time to.

3. The dynamic may not be as direct as with a therapist; there is more of an equal footing – but when our relationships are healthy, we want those around us to thrive.

4. Perhaps above all, Elucies understood the stakes involved in listening well.

5. We want to help them unlock themselves, stand taller, think better.

(A) 1   **(B)** 2   **(C)** 3

(D) 4   **(E)** 5

24. Directions for Summary: A paragraph is followed by four options which have summarized the passage in their own way. Pick the option that best summarizes the passage:

As warming events become longer and more frequent, ice – free surfaces (which cover only 0.4 per cent of the continent) are expected to dramatically increase. Though the disappearance of ice would cause some native plants to bloom, it would also lead to the spread of non – native species and the decline and possible extinction of native animals, such as the emperor and chinstrap penguins. Changes to the Antarctic also pose an existential threat to millions of humans living further north: if the West Antarctica Ice Sheet were to collapse, the global sea – level is estimated to rise between 3.3 and 6 metres – catastrophic for the millions of inhabitants living on low – lying coastal regions or islands.

(A) We should stop acting as countries act as if protecting Antarctica requires protections only within the continent

(B) The most protected place on Earth has become one of the most threatened – and threatening.

(C) In our age, Antarctica has entered a new phase: it has become a paradox.

(D) The impact of human activities in Antarctica itself so far, fortunately, has been limited.

LRDI

Directions: (25 – 28): Answer the questions based on the information given below.

There are ten students (A, B, C, D, E, F, G, H, I and J) in a class who are good in at least one of the subjects (English, Hindi and Science).

- Three amongst them are good at only English, another three are good at only Hindi, and one is good at only science.
- Two students are good at only English and Hindi, and one is good at only English and Science.
- Both A and B are good at Hindi, but only one of them is also good at English.
- D is good at both English and Science. Neither H nor I is good at Hindi.
- Both F and G are good at English, but only one of them is also good at Hindi.
- Neither I nor J is good at English.
- E is not good at Hindi.
- F and J are not good at same subject.

25. Which of the following combination of students represents the students good at English only?

(A) (E, G, C)   **(B)** (F, G, H)   **(C)** (E, D, H)   **(D)** (E, F, H)

26. Which of the following students is certainly good at Hindi only?

(A) A   **(B)** B   **(C)** G   **(D)** C

27. Which of the following students is certainly good at both Hindi and English only?

(A) A   **(B)** B   **(C)** G   **(D)** F

28. Which of the following combination of students represents the students good at Science?

(A) (E, C)   **(B)** (G, H)   **(C)** (E, H)   **(D)** (D, I)

Directions: (29 – 34): Answer the questions based on the information given below.

Seven persons (P, Q, R, S, T, U and V) are sitting in Row 2 facing south whereas (M, N, O, X, Y, Z, and A) are sitting in Row 1 facing north such that both rows are equidistant and parallel to each other. The persons sitting in Row 1 sits opposite to the persons siting in Row 2 and vice – versa. The persons, who sit in row 2 belong to different states (MP, UP, Goa, Sikkim, Bihar, Kerela, and Assam) whereas the persons, who sitin row 1 likes different colors (Black, Blue, Red, Silver, Grey, Pink, and Orange). All information is not necessarily in the same order. Persons in both rows are facing each other.

The one, who belongs to MP, sits immediate left of the one, who belongs to UP. The one, who likes pink colour, sits opposite to the one, who belongs to Sikkim. Y sits 3rd to the left of N, who sits opposite to the one, who belongs to Bihar. Three persons sit between P and R, who sits opposite to the one, who likes orange colour.

Z, who likes black colour, sits 3rd to the left of the one, who likes orange colour. S sits opposite to O, who likes red colour. U, who belongs to Assam, sits opposite to the one, who likes silver colour. The one, who likes blue colour, does not sit adjacent to the one, who likes black colour. Neither A nor M likes pink colour. M does not like silver colour. T sits 3rd to the left of V, who sits at extreme end. P, who belongs to Kerela, sits immediate right of T, who does not belong to Sikkim.

They all play a game of rolling dice, and one person is rolling the dice at a time. They decide certain rules and, on the basis of these rules, they further interchange their position.

Rules:

I. If a person gets a number more than 4, then the person interchanges his/her position with the person sitting opposite to him/her.

II. If a person gets a number more than 2 but less than 5, then the person interchanges his/her position with the person sitting 5th to the left of him/her.

III. If a person gets a number less than or equal to 2, then the person interchanges his/her position with the person sitting 3rd to the right of him/her.

29. Who sits opposite to the one, who likes silver colour?
I. The one, who belongs to Assam　　　　　　　　　　**II.** The one, who belongs to UP
III. U　　　　　　　　　　　　　　　　　　　　　　　　**IV.** V
(A) Only I　　　　　**(B)** Only II　　　　　**(C)** Only III　　　　　**(D)** Only I and III

30. Find the odd one out.
(A) V X　　　　　**(B)** P Y　　　　　**(C)** S O　　　　　**(D)** R N

31. How many persons sit between the one, who belongs to Goa and the one, who sits opposite to the one, who likes black colour?
(A) Three　　　　　　　　　　　　　　　　　　**(B)** Same as between V and T
(C) Same as between A and O　　　　　　　　**(D)** Both **(B)** and **(C)**

32. If Q gets 5 after rolling the dice, then who sits 2nd to the left of Q after the rearrangement?
(A) The one, who likes black colour　　　　　　**(B)** The one, who likes grey colour
(C) M　　　　　　　　　　　　　　　　　　　　**(D)** X

33. If the one, who likes pink colour, gets 1 after rolling the dice, then who sits 3rd to the left of the one, who sits opposite to R after the rearrangement?
(A) The one, who likes black colour　　　　　　**(B)** The one, who likes pink colour
(C) Y　　　　　　　　　　　　　　　　　　　　**(D)** O

34. If the one, who belongs to Sikkim gets 4 after rolling the dice, then _____ sits opposite to the one, who sits immediate left of A after the rearrangement.
(A) The one, who belongs to Assam　　　　　　**(B)** The one, who belongs to Kerela
(C) The one, who belongs to Goa　　　　　　　**(D)** Q

Directions: (35 – 40): Answer the questions based on the information given below.

Some vegetable sellers in order to make profit sell wet vegetables (i.e. they do not dry the vegetables completely before selling). Five vegetable sellers sell two types of vegetables only i.e. potato and cabbage. The given table shows the total quantity (along with water) of vegetables sold, total quantity of water present in all the vegetables together, total quantity (with water) of cabbages sold and percentage of water present in potatoes out of total quantity (with water) of cabbage sold , by each of the five sellers.

Seller	Total quantity (with water) of vegetables (in kg) sold	Total quantity (with water) of cabbage (in kg) sold	Percentage of water present in potatoes out of total quantity (with water) of cabbage sold	Total quantity (in kg) of water present in all the vegetables together
Sundar	500	180	45%	120
Jetha	650	400	12.5%	250
Taarak	1280	480	20%	160
Baagha	400	250	40%	150
Sodhi	900	400	15%	180

35. If Sundar sold each kg of potato for 10 and each kg of cabbage for 8 then find the ratio of amount earned by Sundar on selling potatoes (without water) to the amount earned by him on selling cabbages (without water).
(A) 1275:394　　　　　**(B)** 1180:543　　　　　**(C)** 1195:564　　　　　**(D)** 1305:974

36. Jetha purchased dry cabbage at the rate of Rs. 5/kg and sold the wet cabbage at the rate of 8/kg. Find the profit earned by him.
(A) Rs. 2400　　　　　**(B)** Rs. 1600　　　　　**(C)** Rs. 2200　　　　　**(D)** Rs. 1800

37. The difference between quantity of cabbage (without water) sold by Jetha and Sodhi is equal to difference between total quantity of cabbage (with water) sold by:
(A) Jetha and Taarak　　**(B)** Taarak and Baagha　　**(C)** Baagha and Sodhi　　**(D)** Sodhi and Sundar

38. If total quantity of water present in potatoes sold by Taarak, Baagha and Sodhi together would have been mixed with 324 kg of milk, then find the ratio of the quantities of water to milk in the resultant mixture.
(A) 24:85　　　　　**(B)** 45:91　　　　　**(C)** 72:101　　　　　**(D)** 64:81

39. If Sundar, Baagha and Sodhi had purchased each kg of dry cabbage for Rs. 5, Rs. 8 and Rs. 4, respectively and they sold all the cabbages (wet) at cost price then find the sum of profits earned by them.
(A) Rs. 1075　　　　　**(B)** Rs. 1240　　　　　**(C)** Rs. 925　　　　　**(D)** Rs. 1225

40. If Sodhi sold potato at the purchased rate. Find the profit percentage earned by him.
(A) 11.64%　　　　　**(B)** 10%　　　　　**(C)** 13.64%　　　　　**(D)** 15%

Directions: (41 – 44): Answer the questions based on the information given below.

In a school all the students were asked to bake at least one of the three cookies i.e. peanut, butter or strawberry. Ratio of number of students who baked both peanut and strawberry cookies but not butter cookies to the number of students who baked both butter and strawberry cookies but not peanut cookies is 10:9. Number of students who baked peanut cookies only is 40% more than number of students who baked butter cookies only while ratio of number of students who baked peanut cookies only and strawberry cookies only is 7:15, respectively. Total number of students who baked peanut cookies is 700% more than number of students who baked all three types of cookies. Ratio of number of students who baked both peanut cookies and butter cookies to the number of students who baked both peanut cookies and strawberry cookies is 14:17. Number of students who baked both strawberry and butter cookies but not peanut cookies is 64% less than number of students who baked strawberry cookies only while total number of students who baked both butter cookies and strawberry cookies is 632.

41. Total number of students who baked strawberry cookies is:
(A) 2132   **(B)** 2532   **(C)** 2312   **(D)** 2332

42. Number of students who baked exactly two types of cookies is:
(A) 1672   **(B)** 1772   **(C)** 1072   **(D)** 1272

43. A certain number of aspirants which is same as the number of students who baked only strawberry cookies, gave two exams i.e. Hindi or English, out of which 60% aspirants got passed in at – least one of these two exams and rest got failed. Number of aspirants who got passed in English only is 50% more than number of aspirants who got passed in Hindi only. Find the number of aspirants who got passed in both subjects which is twice the number of aspirants who got passed in Hindi only.
(A) 200   **(B)** 240   **(C)** 320   **(D)** 160

44. Number of students who baked all three types of cookies is:
(A) 360   **(B)** 432   **(C)** 300   **(D)** 200

Quantitative Aptitude

45. A grocery store owner buys 56 kg of rice. He mixes the first 4 kg of rice with a cheaper rice of the same variant that costs ₹ 25/kg in the ratio 8:7 respectively and sells this mixture at a price which is less than cost price of expensive rice but more than that of cheaper rice. Considering remaining quantity of expensive rice, he marks up the price of the rice by 15% and sells 20 kg at this price but gives a discount of 10% for the remaining rice. He makes a total profit of ₹ 164.80 in these transactions. Which of the following cannot be a possible value for the cost price of the expensive rice (in Rs/kg)?
(A) 45   **(B)** 100   **(C)** 32   **(D)** 137

46. The value of 'c' satisfying the following relation:
$\log_{1/7} (c/126) = \log_7 (c – 5)$
(A) 9   **(B)** – 9
(C) 14   **(D)** Cannot Be Determined

47. What is the maximum possible value of p + q if the equation $x^4 – 8x^3 + px^2 – qx + 4 = 0$ has only positive real roots?
(A) 56   **(B)** 24   **(C)** 36   **(D)** 16

48. A circle with diameter QR intersects the sides PQ and PR of a ΔPQR at points D and E respectively. If the lengths of QR, QE and DR are respectively 35 cm, 33.6 cm and 28 cm, then what will be the difference between the lengths of the sides PQ and PR of the ΔPQR?
(A) 14 cm   **(B)** 18 cm   **(C)** 7 cm   **(D)** 3 cm

49. If 4p + 9q = 312, then how many pairs of positive integer values can (p, q) take such that q < p?
(A) 5   **(B)** 9   **(C)** 8   **(D)** 11

50. What is the distance between the point P(28,25) and the farthest point that lies on $x^2 + y^2 – 26x – 34y = -233$?
(A) 35   **(B)** 39   **(C)** 38   **(D)** 32

51. 'A' alone can complete 40% of a work alone in 8 days. 'B' is 20% less efficient than 'A'. 'A' and 'B' together started the work and left after completing 45% of the work. Then 'C' joined and worked with 1/4ᵗʰ of his efficiency which is 'x' units/day for 5 days. The remaining work is completed by both 'A' and 'B' in 5 days. Find the time taken by 'C' alone to complete 80% of the work with his original efficiency.
(A) 12 days   **(B)** 10 days   **(C)** 15 days   **(D)** 17 days

52. Find the area of the triangle whose vertices are (a, b + c), (a, b – c) and (– a, c).
(A) a (b + c)   **(B)** b (a + c)   **(C)** 2bc   **(D)** 2ac

53. A system of four spheres of 11 cm radius is stacked to form a pyramid on a wooden floor, such that three sphere are touching the floor and every sphere touches all other spheres. Which of the following is closest to the distance from the topmost point to the base of this system?
(A) 40   **(B)** 41   **(C)** 39   **(D)** 42

54. A shopkeeper raised the marked price (MP) of an article by 25% and all gave three successive discounts of 20%, 15% and 12.5% on new MP and make a profit of 25%. If shopkeeper would allow only two discounts of 20% and 15% on new MP, he would have made a profit of Rs. 459. Find the cost price of article?
(A) Rs. 1064   **(B)** Rs. 1071   **(C)** Rs. 1183   **(D)** Rs. 1100

55. $(7a + 64) + (7a + 62) + (7a + 60) + ... + (7a + 8) = 23577$. What will be the sum of first a natural numbers?
(A) 7503   **(B)** 23005   **(C)** 16290   **(D)** 6216

56. There are 6 students of which 3 belong to the first year class, 2 belong to the second year class and one is in the third year. In how many ways can they stand in a line so that the students from the same class are together?
(A) 67   **(B)** 76   **(C)** 72   **(D)** 74

Directions (57 – 58): Read the data carefully and answer the following questions.
The average of 8 distinct integers is 35 such that the difference between any two integers is more than 1.

57. Find the maximum possible value of any integer if the minimum value that an integer can take is 13.
(A) 101   **(B)** 147   **(C)** 110   **(D)** 130

58. Find the minimum possible value of any integer if the maximum value that an integer can take is 45.
(A) 7   **(B)** 6   **(C)** 2   **(D)** 4

59. Two circles pass through each other's centres such that the length of their common chord is $8\sqrt{3}$ cm. If the radii of the two circles are equal, then the radius of each circle is equal to:
(A) 16 cm   **(B)** 9 cm   **(C)** 8 cm   **(D)** 4 cm

60. In a test, three friends Arihant, Naina, and Disha scored 65%, 49%, and 78% respectively. Arihant obtained 312 marks more than Lokesh while Naina obtained 72 marks less than Lokesh. How much did Disha score on the test?
(A) 1872   **(B)** 856   **(C)** 1264   **(D)** 2424

61. An article is sold by Jaya in a thrift store at a 40% loss. The article is then marked up by the store by 28%. A person applies a coupon and gets a discount of 25% on the article. He buys it and later sells it to a friend at a 10% loss. If the friend got it at a discount of ₹ 12304.88 when considered at the original price, then what was the marked price of the article by the store?
(A) ₹28070.40   **(B)** ₹27302.40   **(C)** ₹19622.40   **(D)** ₹18854.40

62. A's capital exceeds B's capital by 41/400 of B's capital. B invests his capital at compound interest for 3 years at 5% per annum. At what rate per cent per annum at simple interest must A invest his capital in order that at the end of 3 years, the two amounts may be the same?
(A) 1.75%   **(B)** 1.25%   **(C)** 1.67%   **(D)** 2.5%

63. A bus starts from A and moves towards B at 25 km/hr. At the same time, another bus starts from B and moves towards A at 35 km/hr. Once they reach their destination, they turn back and move towards the point from where it started and go on till infinite time. So, the bus that starts from A, moves to B, turns back and moves back to A, then again to B, then again back to A and so on.
Whenever they meet, while going in opposite directions, the drivers wave to each other. What is the distance between the points where they wave for the first time and where they wave for the 10th time? A and B are 18 km apart.
(A) 6 km   **(B)** 8 km   **(C)** 0 km   **(D)** 1.5 km

64. P and Q together can complete a work in 2/3rd times more than the time taken by R and S together. When R started work alone and on second day P joined him, then the remaining work is completed in 18 days. Q can complete the whole work alone in 20 days and R takes 70% more time than Q to complete the work alone. If time taken by S alone is decreased by 13%, and P and S together are assigned to do a job then approximately what percent work will be completed by P and S together in 5 days?
(A) 67%   **(B)** 72%   **(C)** 69%   **(D)** 75%

65. Jayesh has invested some money in a scheme for 3 years at simple interest and received an interest of Rs 1200. Jayesh again invested the same money for the same duration in a different scheme which offers the same interest rate but interest is compounded annually. In this scheme he received Rs.440 as interest in the second year. What was the difference in the total interest which Jayesh received from both schemes over the entire duration?
(A) Rs 1124   **(B)** Rs 124   **(C)** Rs 224   **(D)** Rs 142

66. Given distinct real numbers $x_1, x_2, x_3, ... , x$ we compare the first two terms x_1 and x_2 and swap them if $x_2 < x_1$. Then we compare the second and third terms of the resulting sequence and swap them if the latter term is smaller, and so on, until finally we compare the 39th and 40th terms of the resulting sequence and swap them if the last is smaller. If the sequence is initially in random order, find the probability that x_{20} ends up in the 30th place.
(A) $\frac{1}{30}$ **(B)** $\frac{1}{870}$ **(C)** $\frac{1}{900}$ **(D)** $\frac{1}{930}$

Space for Rough Work