

**INSTRUCTIONS**

1. Read the instructions given at the beginning/end of each section or at the beginning of a group of questions very carefully.
2. This test has a total of 100 questions in three sections: (i) Verbal Ability and Reading Comprehension –34 Questions (ii) Data Interpretation and Logical Reasoning –32 Questions and (iii) Quantitative Ability –34 Questions. The total time available for the test is **180 minutes**. However, you will be allotted exactly 60 minutes for answering the questions in each section and you cannot switch from one section to another while answering the questions in a section.
3. All questions carry three marks each. Each wrong answer to any multiple-choice type question will attract a penalty of one mark. Wrong answers to any non multiple-choice type question will not attract any penalty.

**SECTION –I**

**Number of Questions = 34**

**DIRECTIONS** for questions 1 to 5: The passage given below is accompanied by a set of five questions. Choose the best answer to each question.

**A**s a supplier of momentary relief, the Great Depression seems an unlikely candidate. But when it turns up on page 363 of Walter Scheidel's "The Great Leveler" it feels oddly welcome. For once – and it is only once, for no other recession in American history boasts the same achievement – real wages rise and the incomes of the most affluent fall to a degree that has a "powerful impact on economic inequality".

Only four things, Mr Scheidel argues, cause large-scale levelling. Epidemics and pandemics can do it, as the Black Death did when it changed the relative values of land and labour in late medieval Europe. So can the complete collapse of whole states and economic systems, as at the end of the Tang dynasty in China and the disintegration of the western Roman Empire. When everyone is pauperised, the rich lose most. Total revolution, of the Russian or Chinese sort, fits the bill. So does the 20th-century sibling of such revolutions: the war of mass-mobilisation.

And that is about it. Financial crises increase inequality as often as they decrease it. Political reforms are mostly ineffectual, in part because they are often aimed at the balance of power between the straightforwardly wealthy and the politically powerful, rather than the lot of the have-nots. Land reform, debt relief and the emancipation of slaves will not necessarily buck the trend much, though their chances of doing so increase a bit if they are violent. But violence does not in itself lead to greater equality, except on a massive scale.

Perhaps the most fascinating part of this book is the careful accumulation of evidence showing that mass-mobilisation warfare was the defining underlying cause of the unprecedented decrease in inequality seen across much of the Western world between 1910 and 1970 (though the merry old Great Depression lent an unusual helping hand). By demanding sacrifice from all, the deployment of national resources on such a scale under such circumstances provides an unusually strong case for soaking the rich.

Income taxes and property taxes rose spectacularly during both world wars (the top income-tax rate reached 94% in America in 1944, with property taxes peaking at 77% in 1941). Physical damage to capital goods slashed the assets of the wealthy, too, as did post-war inflations. The wars also drove up membership in trade unions – one of the war-related factors that played a part in keeping inequality low for a generation after 1945 before it started to climb back up in the 1980s.

Catastrophic levelling will be less likely in future. Pandemics are a real risk, but plagues similar in impact to the Black Death are not. Nor are total revolutions and wars fought over years by armies of millions. On top of that, since the Industrial Revolution, general prosperity, regardless of inequality, has risen. And in past decades, global inequality has fallen.

There are two other possibilities. One is to note that historical circumstances change. Is it not possible that another less horrible but equally profound transformation in the way that people and nations get along with each other, or fail to, is yet to come? If, for example, increasingly economically important non-human intelligences decided that they would rather not be owned by anyone? The other possibility is that some may see civilizational collapse as a price worth paying for the Utopia they might build in the rubble – or may just like to see the world burn.

1. The Great Depression offers momentary relief according to the author because:
  - (A) it caused large-scale levelling.
  - (B) it is not one of the four causes of large-scale levelling.
  - (C) financial crises increase inequality.
  - (D) it led to a universal increase in minimum wages.
2. World wars contributed to income equality in all the following ways EXCEPT:
  - (A) income and property taxes were on the ascent.
  - (B) physical damage to goods and inflation adversely affected affluence.
  - (C) trade union memberships led to a rise in wages.
  - (D) wars provided a strong case for soaking the rich.
3. Which of the following, if true, will weaken the author's argument about catastrophic levelling?
  - (A) The threat of a nuclear war which could wipe-off civilisation is unreal.
  - (B) We do not have enough medical technology to restrict breaking out of epidemics.
  - (C) Overall standard of living has increased since the Second World War.
  - (D) Relative values of land and labour could be upset by large-scale epidemics.
4. The author thinks political reforms are ineffective because:
  - (A) political reforms do not target the less privileged.
  - (B) they increase inequality as much as they decrease it.
  - (C) they are not intended to really bring about reforms.
  - (D) land reforms and debt-relief are ineffective unless accompanied by violence.
5. By 'So does the 20th-century sibling of such revolutions: the war of mass-mobilisation', the author means that:
  - (A) revolutions are impossible in the 20<sup>th</sup> century.
  - (B) both revolutions and wars lead to mass pauperisation.
  - (C) both revolutions and wars lead to mass-mobilisation.
  - (D) revolutions lead to wars.

**DIRECTIONS** for questions 6 to 9: The passage given below is accompanied by a set of four questions. Choose the best answer to each question.

One of the great unexplained wonders of human history is that written philosophy first flowered entirely separately in different parts of the globe at more or less the same time. The origins of Indian, Chinese and ancient Greek philosophy, as well as Buddhism, can all be traced back to a period of roughly 300 years, beginning in the 8th century BC.

These early philosophies have shaped the different ways people worship, live and think about the big questions that concern us all. Most people do not consciously articulate the philosophical assumptions they have absorbed and are often not even aware that they have any, but assumptions about the nature of self, ethics, sources of knowledge and the goals of life are deeply embedded in our cultures and frame our thinking without our being aware of them.

Yet, for all the varied and rich philosophical traditions across the world, the western philosophy I have studied for more than 30 years – based entirely on canonical western texts – is presented as the universal philosophy, the ultimate inquiry into human understanding. Comparative philosophy – study in two or more philosophical traditions – is left almost entirely to people working in anthropology or cultural studies. This abdication of interest assumes that comparative philosophy might help us to understand the intellectual cultures of India, China or the Muslim world, but not the human condition.

This has become something of an embarrassment for me. Until a few years ago, I knew virtually nothing about anything other than western philosophy, a tradition that stretches from the ancient Greeks to the great universities of Europe and the US. Recently and belatedly, I have been exploring the great classical philosophies of the rest of the world, travelling across continents to encounter them first-hand. It has been the most rewarding intellectual journey of my life.

My philosophical journey has convinced me that we cannot understand ourselves if we do not understand others. Getting to know others requires avoiding the twin dangers of overestimating either how much we have in common or how much divides us. Our shared humanity and the perennial problems of life mean that we can always learn from and identify with the thoughts and practices of others, no matter how alien they might at first appear. At the same time, differences in ways of thinking can be both deep and subtle. If we assume too readily that we can see things from others' points of view, we end up seeing them from merely a variation of our own.

To travel around the world's philosophies is an opportunity to challenge the beliefs and ways of thinking we take for granted. By gaining greater knowledge of how others think, we can become less certain of the knowledge we think we have, which is always the first step to greater understanding.

6. Comparative philosophy is left to people working in anthropology or cultural studies because:
  - (A) there is no interest left in comparing philosophical traditions.
  - (B) it is important to understand the intellectual cultures of India, China or the Muslim world.
  - (C) human condition is more related to anthropology than to universal philosophy.
  - (D) study of different philosophical traditions are thought to throw light on cultures rather than on humanity.

7. The author feels that we can get to know ourselves if:
  - (A) we do not overestimate how much unites or separates humanity.
  - (B) we do not overestimate how much all philosophies have in common.
  - (C) we do not overestimate the deep and subtle differences in our thinking.
  - (D) we do not overestimate the perennial problems others face in life.
8. Which of the following is a study the author is likely to advocate?
  - (A) A study that determines the similarities between philosophical traditions.
  - (B) A study that determines the differences between philosophical traditions.
  - (C) A study that compares various philosophical traditions.
  - (D) A study of the salient features of Eastern philosophical traditions.
9. The philosophical assumptions absorbed by people who do not consciously articulate them are associated to:
  - (A) the ways in which people worship, live and think about big questions.
  - (B) moralities, knowledge and the purpose of life.
  - (C) the cultural assumptions deeply embedded in our philosophies.
  - (D) assumptions we consciously adopt to frame our thinking.

**DIRECTIONS** for questions 10 to 14: The passage given below is accompanied by a set of five questions. Choose the best answer to each question.

**S**ome of the most high-profile findings in social sciences of the past decade do not stand up to replication, a major investigation has found.

The project, which aimed to repeat 21 experiments that had been published in *Science* or *Nature* – science's two preeminent journals – found that only 13 of the original findings could be reproduced.

The research, which follows similar efforts in psychology and biomedical science, raises fresh concerns over the reliability of the scientific literature. However, the project's leaders say their results do not reflect a "crisis" in the social sciences.

Prof Brian Nosek, executive director of the Center for Open Science and a professor at the University of Virginia, said: "I don't think it's a crisis, it's a reformation. We're in the midst of a dramatic increase in the rigour and transparency of research in the social sciences."

Nosek said that, while some previous replication efforts had been viewed with hostility, this effort had been collaborative. Authors from nearly all of the papers under scrutiny engaged with the project to help ensure the repeat experiments were close replicas of the originals – and several of these scientists published responses that ran alongside the latest paper.

"It's not recriminations about who is a bad researcher or otherwise," said Nosek. "That's something that has completely changed over the last five years. Replication in 2012 felt like an attack because it was so rare in science at the time. Now it's become normal."

Findings that failed to replicate included a study suggesting that viewing a picture of Rodin's sculpture *The Thinker* led to people reporting weaker religious beliefs (a possible explanation being that analytical thought, as represented by the sculpture, counteracted religious beliefs). The finding that the physical act of washing your hands leads to less muddled thinking (a phenomenon known as cognitive dissonance) also failed the replication test.

"That doesn't mean it's unreplicable, no study is definitive," said Nosek. "Science is really a process of uncertainty reduction."

In total, the team tried to replicate one main finding from each of the 21 social science papers published between 2010 and 2015 in *Science* or *Nature*...

They found evidence to back the original conclusions in 13 of the 21 (62%) studies. But, on average, the sizes of the effects recorded were about 75% as big in the replication studies, despite these using sample sizes that were on average five times as big.

The latest work revealed scientists were also uncannily accurate at predicting which studies would later succeed or fail to replicate. About 200 scientists were recruited and on average predicted the replication outcomes for 18 out of the 21 papers under scrutiny.

Prof Malcolm Macleod, a neurologist at the University of Edinburgh, said there was a need to prioritise the quality of science as well as the novelty of findings. "We need to wean ourselves off the nectar and the crack cocaine of highly exciting results and work out what we can do to maximise the quality" he said. "That's becoming much more of a thing now."

Nosek agreed, saying that the growing trend for pre-registering the aims of a study and the increasing number of journals to have adopted policies promoting transparency were encouraging.

10. From the passage we can infer that the author wants:
- (A) more stringent standards for studies that have significant consequences.
  - (B) more rigorous methods to reach conclusions in various studies.
  - (C) more policies to ensure the refinement of findings.
  - (D) more standards for replicating studies.
11. Which of the following, if true, would invalidate the approach taken by the author in the passage?
- (A) Policies promoting transparency can bring down the number of studies across fields.
  - (B) Creating similar conditions as mentioned in a study is virtually impossible.
  - (C) Replication efforts are confronted with hostility in academic circles.
  - (D) Replicability of findings is not the best way of identifying the veracity of a study.
12. All of the following are changes in recent times according to Nosek EXCEPT:
- (A) the practice of pre-registering aims of a study has increased.
  - (B) transparency has gained relevance amongst journals.
  - (C) replicating studies is now a well-received practice.
  - (D) recrimination of bad researchers happens more regularly.
13. The 'nectar and the crack cocaine of highly exciting results' is:
- (A) an accurate description of the quality of present studies.
  - (B) a metaphor to indicate the focus on results rather than on the accuracy of the process.
  - (C) an analogy for maximising the quality of studies.
  - (D) a sign of studies being extremely unreliable.
14. Which of the following can be inferred from the first sentence of the antepenultimate para of the passage ('The latest work revealed...succeed or fail to replicate')?
- (A) Scientists publishing studies know the vulnerabilities of the evidence used.
  - (B) The reasons behind why studies fail are hard to decipher.
  - (C) Studies that won't pass the replication test should be abandoned.
  - (D) Peer group review is a reasonably accurate way of whetting published studies.

**DIRECTIONS** for questions 15 to 19: The passage given below is accompanied by a set of five questions. Choose the best answer to each question.

**P**oliticians have always exploited the past. But just now, rich countries and emerging economies are experiencing an outbreak of nostalgia. Right and left, democracies and autocracies, all are harking back to the glories of yesteryear. Even as President Donald Trump vows to "Make America great again", President Xi Jinping is using his "Chinese dream" to banish a century of humiliation and return China to its golden age.

This orgy of reminiscence has different causes in different countries. In emerging markets, past glories are often a foretaste of future triumphs. China, which has enjoyed 40 years of transformative growth, senses that it is on the threshold of something great. Under Narendra Modi, India has been celebrating its growing geopolitical heft with a Hindu-nationalist revival.

In the rich world, by contrast, nostalgia usually stems from what Sophia Gaston, of the Henry Jackson Society, calls "an omnipresent, menacing feeling of decline". Almost two-thirds of Britons think that life used to be better. A similar share of the French do not feel at home in the present. This year's World Happiness Report found that Americans are becoming less content. Large majorities in rich and developing countries believe that robots and automation will increase inequality and harm employment. A poll of 28 countries in 2017 found that over half of respondents expected their living conditions to stagnate or worsen.

Vaults full of research attest to how emerging-market optimism is more soundly based than rich-country pessimism. People around the world are living longer, healthier lives; fewer fall victim to war and famine; as education spreads, discrimination and prejudice are waning. Similarly, the summers were rarely as idyllic or the nation as glorious as sentiment would have it.

But to reject pessimism and nostalgia as simply inaccurate misses the point. They are powerful forces that are shaping politics. To harness them, you must first understand them.

Nostalgia serves optimists and pessimists alike as an anchor in a world being transformed. New technologies, including artificial intelligence, threaten to disrupt entire industries and to alter the relationship between the state and the citizen. After two centuries power is shifting from the West back to China. The planet is ageing faster than at any time in history. Its climate is changing. It is ever more racially and culturally mixed.

At such moments, people are drawn to nostalgia as a source of reassurance and self-esteem. Many Brexiteers hope that leaving the European Union means they will once again belong to a dynamic "global Britain". Catalans evoke an idealised past in pursuit of a distinctive identity.

In the rich world, nostalgia also offers a way to rebel against someone else's idea of progress – to "take back control". This makes nostalgia dangerous. Protesters do not necessarily expect to put back the clock – they may just be seeking

to slow it down. In addition, the self-esteem that nostalgists crave often seems to feed xenophobia. Because of the taint of xenophobia, progressives are quick to treat all nostalgia as prejudice, leading them to dismiss the fears of whole sections of society. That sweeping judgment is one more reason why populists have been able to exploit nostalgia so successfully.

The best way to harness the past is demolishing prejudice and opening horizons. A proper sense of history can help you grasp that progress and it depends on facing up to hard choices. Sometimes it can inspire, too.

15. The author's argument can be repudiated by which of the following findings, if they are true?
  - (A) People across the globe feel change is inevitable.
  - (B) People across the globe are anxious about how things will unravel.
  - (C) People across the globe feel things are changing too fast.
  - (D) People across the globe feel the world is changing for the better.
16. Progressives mistake nostalgia for bias because what nostalgists crave
  - (A) is a sign of racism.
  - (B) leads to intolerance.
  - (C) leads to rebellions.
  - (D) is a populist emotion.
17. 'Chinese dream' and 'Make America great again' show that:
  - (A) politicians are adept at exploiting the past.
  - (B) past glories are being invoked to encourage future triumphs.
  - (C) rich worlds are mourning the decline of their society.
  - (D) countries around the world, irrespective of forms of government, are in a mood of reminiscence.
18. The author uses the expression 'the summers were rarely as idyllic' to highlight his
  - (A) disillusionment with the past.
  - (B) disagreement with the nostalgists.
  - (C) concern over the growing populism in rich worlds.
  - (D) stance on the glorification of the past.
19. The difference between the nostalgia of emerging countries and that of rich countries is that:
  - (A) in the former, it gives a taste of success, while in the latter, it gives a sense of failure.
  - (B) in the former, it brings a sense of pride, whereas in the latter, it is a sense of embarrassment.
  - (C) in the former, it indicates future triumphs, whereas in the latter, it invokes a bleak future.
  - (D) in the former, it represents disappointment, whereas in the latter, it represents hope.

**DIRECTIONS** for questions 20 to 24: The passage given below is accompanied by a set of five questions. Choose the best answer to each question.

The modern world is experiencing a "sixth great extinction" of animal species even when the lowest estimates of extinction rates are considered, scientists have warned. The rate of extinction for species in the 20<sup>th</sup> century was up to 100 times higher than it would have been without man's impact, they said.

Many conservationists have been warning for years that a mass extinction event akin to the one that wiped out the dinosaurs is occurring as humans degrade and destroy habitats. But the authors of a study published on Friday said that even when they analysed the most conservative extinction rates, the rate at which vertebrates were being lost forever was far higher than in the last five mass extinctions.

Previous studies have warned that the impact of humans taking land for buildings, farming and timber has been to make species extinct at speeds unprecedented in Earth's 4.5bn-year history. Dr Gerardo Ceballos of the National Autonomous University of Mexico said that his study, co-authored by Paul R Ehrlich who famously warned of the impact of humanity's "population bomb", employed better knowledge of natural or so-called background extinction rates. He said it was conservative because it looked only at species that had been declared extinct, which due to stringent rules can sometimes take many years after a species has actually gone extinct.

Under a "natural" rate of extinction, the study said that two species go extinct per 10,000 species per 100 years, rather than the one species that previous work has assumed. Modern rates of extinction were eight to 100 times higher, the authors found. For example, 477 vertebrates have gone extinct since 1900, rather than the nine that would be expected at natural rates.

"It's really signalling we've entered a sixth extinction and it's driven by man," said Ceballos. However, Prof Henrique Miguel Pereira, the chair of the Group on Earth Observations Biodiversity Observation Network, said that the new paper did not add anything revolutionarily new. "They argue that recent extinction rates are up to 100 times higher than in the past. I think it improves our documentation of the process, but it does not yet confirm a sixth mass extinction. I tend to think we have a major biodiversity crisis, but it would take either a fast acceleration of current extinction rates or a couple of centuries at current extinction rates, for the current process to become a sixth mass extinction."

The team behind the new analysis said "rapid, greatly intensified efforts" would be needed to stop or slow the extinctions currently underway. Ceballos pointed to the Pope Francis's encyclical on the environment, which was published on Thursday and lamented the loss of the world's biodiversity, and interventions by Barack Obama, as signs

of hope. "These important figures are starting to really grasp the problem," he said. On why people should be worried about the rate of extinctions, he said: "People say that's really sad, but why does it affect me? There are many reasons we should care. We are the species that are causing the loss of all these other species."

But the most important reason, he said, was that by losing species, humanity was losing what enabled us to have a "good standard of living".

20. Prof Henrique Miguel Pereira's main argument against the study discussed in the passage is that:

- (A) the current rate of extinction does not qualify to call it a mass extinction, yet.
- (B) it was already known that extinction rates had gone higher than in the past.
- (C) the sixth mass extinction is not possible at the current extinction rate.
- (D) the new paper has copied its findings.

21. Which of the following additional studies will add the most depth to Ceballos' study?

- (A) A study to compare the rate of extinction of species now and a hundred years ago.
- (B) A study to identify if the current rate of extinction of species is rapid enough to cause a mass extinction in immediate future.
- (C) A study to identify the total number of species on the planet.
- (D) A study to compare the extinction rates of the previous mass extinctions.

22. Ceballos mentioned Obama to demonstrate that:

- (A) everyone deserves a good standard of living.
- (B) intensified efforts are needed from powerful people.
- (C) the problem deserves more attention from important figures
- (D) important people are comprehending the criticality of the extinction rate.

23. The author mentions that Ceballos' study is conservative because:

- (A) it only considers species that have been declared extinct.
- (B) it only takes into account background extinction rates.
- (C) it only takes vertebrates into account.
- (D) it only warns of the impact of humanity's population bomb.

24. The author thinks the most important reason why people should be worried about the rate of extinctions is that:

- (A) it will affect our standard of living.
- (B) humanity is responsible for the extinction.
- (C) we have entered into the phase of sixth mass extinction.
- (D) we are losing something important to our living standards.

**DIRECTIONS for question 25:** Five sentences related to a topic are given in the question below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out. Choose its number as your answer and key it in.

25. (1) They were unprepared for the Japanese bombers that arrived shortly after.  
(2) On the morning of December 7<sup>th</sup>, 1941, George Elliott Junior noticed "the largest blip" he had

ever seen on a radar near America's naval base at Pearl Harbour.

- (3) His discovery was dismissed by his superiors.
- (4) As a credit-detector, the credit gap has some appealing operating characteristics.
- (5) The mistake prompted urgent research into "receiver operating characteristics", the ability of radar operators to distinguish between true and false alarms.

**DIRECTIONS for question 26:** The sentences given in the question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the four sentences and key in the sequence of four numbers as your answer, in the input box given below the question.

26. (1) Those with academic inclinations took extra classes with the head teacher in their teenage years and with luck made it into teachers' college.  
(2) Chief among MacMillan's concerns was Jamaica's educational system.  
(3) Those with broader ambitions had to somehow find their way into a private school, and from there to a university in the US or England.  
(4) So called formal schooling "in the wooden barn next door" went only to fourteen years of age and there were no public high schools or universities.

**DIRECTIONS for question 27:** The passage given below is followed by four summaries. Choose the option that best captures the author's position.

27. This ought to be a time when democracy leaps forward, an informed citizenry being essential to self-government. Instead, it's in retreat. Three decades after the Cold War defeat of a blunt and crude autocracy, a cleverer brand takes nourishment from the murk that surrounds us. The old-school despot embraced censorship. The modern despot, finding that more difficult, foments mistrust of credible fact, thrives on the confusion loosed by social media and fashions the illusion of legitimacy from supplicants.

- (A) Informed citizenry is disappearing because of modern-day dictators embracing censorship and false news.
- (B) Democracy is losing ground because of the misinformation floating in social media.
- (C) Modern-day tyrants discredit information dumbing down citizens fed by social media.
- (D) Modern-day autocrats are harming democracy not by censoring information, but by propagating amongst citizens a mistrust of information.

**DIRECTIONS** for question 28: The sentences given in the question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the four sentences and key in the sequence of four numbers as your answer, in the input box given below the question.

28. (1) If you think about the world of preschoolers, they are surrounded by stuff they don't understand – things that are novel.  
 (2) So the driving force for preschoolers is not a search for novelty, like it is with older kids, it's a search for understanding and predictability.  
 (3) But, of course, kids don't always like repetition and whatever they are watching has to be complex enough to allow, upon repeated exposure, for deeper levels of comprehension.  
 (4) Repetition of key elements enables this process of understanding and predictability and is really valued by them.

**DIRECTIONS** for question 29: The sentences given in the question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the four sentences and key in the sequence of four numbers as your answer, in the input box given below the question.

29. (1) Seventy percent of the Eastern European Jews who came to America through Ellis Island before World War I were bookbinders, watchmakers, jewellers, tailors, cap and hat makers, furriers, and tanners.  
 (2) For centuries in Europe, the Jews had been forbidden to own land, so they clustered in cities, taking up urban trades and professions.  
 (3) The Irish and the Italians were peasants, tenant farmers from the impoverished countryside of Europe but not so the Jews.  
 (4) Jewish immigrants like the Floms and the Borgenichts and the Janklows were not like the other immigrants who came to America in the early twentieth century.

**DIRECTIONS** for question 30: Five sentences related to a topic are given in the question below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out. Choose its number as your answer and key it in.

30. (1) Many things that you know about yourself are simply not true.  
 (2) You could also be a genius in interpersonal intelligence, intrapersonal intelligence, intuitive intelligence, artistic intelligence or abstract intelligence.  
 (3) Unfortunately, only two intelligences are measured and reported throughout school and university: verbal and mathematical.

- (4) According to Dr. Howard Gardner of Harvard University, you possess at least ten different intelligences, in any one of which you might be a genius.  
 (5) But you could be a genius in the areas of visual-spatial intelligence, entrepreneurial intelligence, kinesthetic intelligence and musical intelligence.

**DIRECTIONS** for question 31: The passage given below is followed by four summaries. Choose the option that best captures the author's position.

31. Instagram is imperatively filled with half-truths and optimizations of life, yet we still use it to gauge our own. For some reason, though, we don't consider Instagram photos to be as manipulative of reality as the photos in magazines. This is because despite the editing, they seem more accessible because we know the photographers. As I pour over my feed, I find myself asking why I can't look like one girl or another, why my outfits aren't as cute, why my "skinny arm" always fails or why my weekend outings aren't as exciting as everyone else's. I'm always saying, "I just want to be her," or "His life is so cool" because no matter how much I love my own life, someone's will always be better looking on Instagram.

- (A) We don't consider Instagram photos, otherwise optimised, to be manipulative of reality because of proximity to the source.  
 (B) We have incorrect notions of others' lives because everything looks better on Instagram.  
 (C) Instagram optimises how your life looks on the outside and yet, we don't consider it as manipulative.  
 (D) We can't stop ourselves from comparing our lives with those of others on Instagram despite knowing that what we see is only half-truth.

**DIRECTIONS** for question 32: Five sentences related to a topic are given in the question below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out. Choose its number as your answer and key it in.

32. (1) She gave the Russians one day to produce and explanation before she concluded that Britain had been the victim of "an unlawful use of force".  
 (2) The prime minister pointed her finger directly at Russia's president, Vladimir Putin.  
 (3) On 30<sup>th</sup> June 2018, a similar poisoning of two British nationals in Amesbury, seven miles from Salisbury, involved the same nerve agent.  
 (4) She said that either the Russian state had sanctioned the attack on the former Russian spy or it had lost control of a deadly poison.  
 (5) Theresa May kicked off a dramatic week on March 12<sup>th</sup> 2018 with her Commons statement on the poisoning of Sergei Skripal and his daughter Yulia by a powerful Novichok nerve agent in Salisbury.

**DIRECTIONS** for question 33: The sentences given in the question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the four sentences and key in the sequence of four numbers as your answer, in the input box given below the question.

33. (1) Tchaikovsky's ballet 'The Nutcracker' is now an iconic holiday entertainment staple, performed by many companies around the world, including the Moscow Ballet.  
 (2) Then in 1954, choreographer George Balanchine staged the show with the New York City Ballet; and his version, which caught on, inspired other dance companies to stage their own.  
 (3) It was revived and restaged in the early 20th century, but still didn't make an impact.  
 (4) But when 'The Nutcracker' debuted this day in 1892 in St. Petersburg, Russia, it was not a hit.

**DIRECTIONS** for question 34: The passage given below is followed by four summaries. Choose the option that best captures the author's position.

34. Medicine and technology have much in common. Contrary to the natural sciences, neither of them is

aimed at obtaining knowledge for its own sake. Both have an emphasis on techno rather than episteme, i.e. their goal is to find means of achieving practical results, to change the world rather than just to understand it. Medicine and technology also have a large and rapidly growing intersection, namely the use of technological methods to achieve the goals of healthcare. The use of complicated technology in hospitals has increased the role of engineers in healthcare. Due to the need for their expertise, some technological and engineering personnel are moving closer to the patient and assume roles that are more clinical in multidisciplinary healthcare teams. Unfortunately, their role is often insufficiently understood by the public and by members of the better-established healthcare professions.

- (A) Medicine and technology are pursued not for epistemological reasons but for practical necessities.  
 (B) Technological experts play a crucial, albeit understated, role in medicine because of how much medicine and technology have in common.  
 (C) Engineers have become more important in medicine because of the use of complex technological methods.  
 (D) Medicine and technology are intersecting more and more bringing engineers closer to patients.

## SECTION -II

Number of Questions = 32

**DIRECTIONS** for questions 1 to 4: Answer the questions on the basis of the information given below.

Nine letters – A, B, C, D, E, F, G, H, I – and nine numbers, 1 to 9, are to be arranged in nine boxes which are in three rows and three columns, such that each box contains exactly one letter and exactly one number.

The arrangement has to satisfy the following conditions:

- (i) Two of the three vowels appear in a single row and no two vowels appear in a single column.  
 (ii) The number in the second column of the first row is 1.  
 (iii) The number in the third column of the first row is twice that in the third column of the second row, and the sum of these two numbers is in the third column of the third row.  
 (iv) B, A, I and F, A, H are the elements in the two diagonals, while B and F are not in the first row.  
 (v) The number 3 is in the first column of the second row.  
 (vi) The sum of the numbers in the first column is one less than that in the second column.  
 (vii) The numbers 8 and 9 appear in the same row.

**DIRECTIONS** for questions 5 to 8: Answer the questions on the basis of the information given below.

A group of five friends keep in contact with each other by calling each other over their mobile phones. It is known that the duration of any call made by A to any of his friends is always the same. Similarly, the duration of any call made by B to any of his friends is always the same. The same is the case for each of C, D and E. The table below gives the total duration of the calls made and the calls received by each of these friends during a particular week. During that week, each friend called each of the other friends exactly twice and none of the five friends made any call to or received any call from anyone else other than among themselves.

**DIRECTIONS** for question 1: Type in your answer in the input box provided below the question.

1. What is the value of the number that is in the second column of the second row?

**DIRECTIONS** for questions 2 to 4: Select the correct alternative from the given choices.

2. If there is an odd number in the box which contains H, then what is the value of the number in the box which contains G?  
 (A) 1 (B) 2  
 (C) 3 (D) Cannot be determined
3. If the box (cell) in which G is contains a perfect square, then which of the following could be in the third column of the second row?  
 (A) C, 2 (B) D, 3 (C) C, 1 (D) D, 1
4. If the sum of the numbers in the boxes which contain B and G is seven, what is the sum of the numbers in the boxes which contain C and D?  
 (A) 10 (B) 12  
 (C) 4 (D) Cannot be determined



Name	Total Duration of Calls Made (min)	Total Duration of Calls Received (min)
A	8	
B	12	
C	10	15
D		
E		12

**DIRECTIONS** for question 5: Type in your answer in the input box provided below the question.

5. What is the total duration (in minutes) of the calls made by D during the week?

**DIRECTIONS** for question 6: Select the correct alternative from the given choices.

6. The difference between the total duration of calls made and the total duration of calls received during the week is the maximum for
- (A) B.  
(B) C.  
(C) D.  
(D) E.

**DIRECTIONS** for question 7: Type in your answer in the input box provided below the question.

7. All the five friends subscribe to the same telecom service provider, which charges them ₹1/min for calls made and ₹0.50/min for calls received. For billing purposes, the duration of any call which did not last for a whole number of minutes is rounded up to the next highest whole number of minutes.

What were the total expenses incurred by E (in ₹) on the calls made and the calls received by him during the given week?

**DIRECTIONS** for question 8: Select the correct alternative from the given choices.

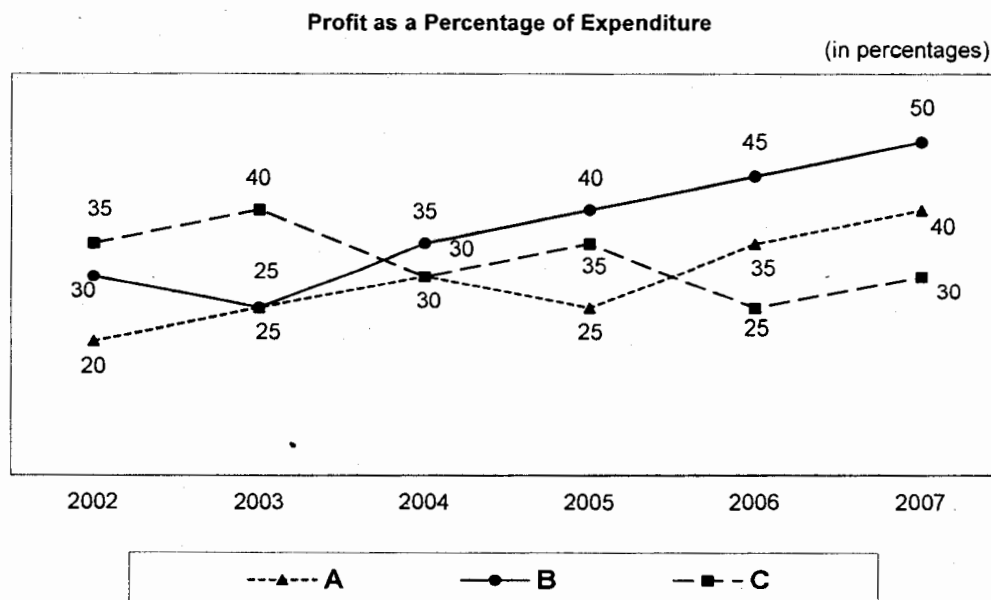
8. All the five friends subscribe to the same telecom service provider, which charges them ₹1/min for calls made and ₹0.50/min for calls received. For billing purposes, the duration of any call which did not last for a whole number of minutes is rounded up to the next highest whole number of minutes.

During the following week, the total durations of the calls made and calls received by the friends among themselves remained the same as that in the given week. Further, it is known that every person in the group called only one other person, F, exactly once, and for a duration of exactly 2 minutes each, but received no calls from either F or anyone else outside the group. What will be the total expenses incurred by the five friends put together on the calls made and calls received by them during that week?

- (A) ₹118 (B) ₹126.5  
(C) ₹142 (D) None of the above

**DIRECTIONS** for questions 9 to 12: Answer the questions on the basis of the information given below.

The line graph and the tables that follow give the details of the performance of three companies – A, B and C – for the years 2002 to 2007.



### Annual Income

(in ₹ crore)

Year Company	2002	2003	2004	2005	2006	2007
A	149.4	173.4	176.2	227.4	223.4	241.7
B	157.6	164.7	179.4	185.3	204.6	268.4
C	189.2	172.3	138.7	174.4	210.8	224.5

### Percentage break-up of total Expenditure

(in percentages)

Year Cost Head	2002			2003			2004			2005			2006			2007		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Raw materials	15	20	30	20	15	10	25	20	20	20	15	25	30	25	10	15	20	10
Salaries	25	30	25	20	20	35	30	30	30	35	25	35	25	20	20	40	35	30
Power	20	20	20	30	30	20	10	15	10	15	10	10	15	25	25	15	15	10
Overheads	15	10	15	10	20	15	15	20	20	15	30	15	25	20	20	20	10	20
Transport	25	20	10	20	15	20	20	15	20	15	20	15	5	10	25	10	20	30

$$\text{Profit Percentage} = \frac{\text{Income} - \text{Expenditure}}{\text{Expenditure}} \times 100$$

**DIRECTIONS for question 9:** Type in your answer in the input box provided below the question.

9. In how many of the given years is the expenditure on salaries of one or more companies equal to the profit of the respective company in that year?

**DIRECTIONS for question 10:** Select the correct alternative from the given choices.

10. In which of the following years is the ratio of the expenditure of company A to that of company B the highest?  
 (A) 2002 (B) 2005  
 (C) 2003 (D) 2006

**DIRECTIONS for question 11:** Type in your answer in the input box provided below the question.

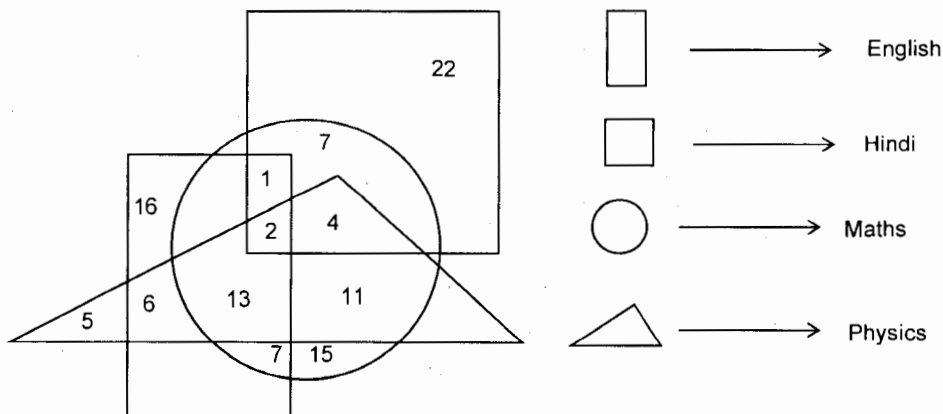
11. For how many of the given companies is the ratio of income to expenditure more than  $\frac{5}{4}$  but less than  $\frac{3}{2}$  in at most four of the years given?

**DIRECTIONS for question 12:** Select the correct alternative from the given choices.

12. In the year 2007, if the total expenditure incurred on each of the five cost heads by all the three companies together is considered, then the expenditure on which cost head is the highest in that year?  
 (A) Raw materials (B) Salaries  
 (C) Power (D) Transport

**DIRECTIONS for questions 13 to 16:** Answer the questions on the basis of the information given below.

The diagram below represents the distribution of the number of students of a class who passed in one or more subjects out of four different subjects – Maths, Physics, Hindi and English.



**NOTE:** In the figure above, the number of students belonging to any particular combination (i.e., combination of subjects passed in) which is not shown is zero.

**DIRECTIONS** for question 13: Type in your answer in the input box provided below the question.

13. How many students passed in at least one subject among Hindi and English but failed in at least one subject among Maths and Physics?

**DIRECTIONS** for questions 14 to 16: Select the correct alternative from the given choices.

14. If every student who failed in not more than one of the above mentioned four subjects gets promoted to the next class, then how many students are promoted to the next class?  
(A) 3

- (B) 6  
(C) 18  
(D) 20

15. How many students failed in at most two of the above mentioned four subjects?

- (A) 51  
(B) 52  
(C) 53  
(D) Data Insufficient

16. How many students passed in Maths but failed in English?

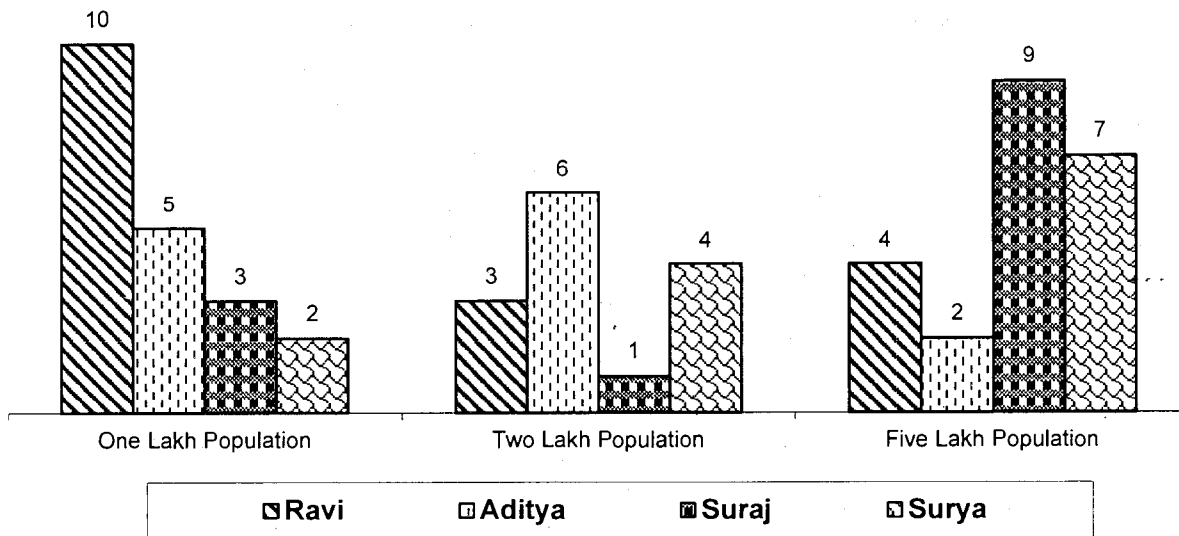
- (A) 44  
(B) 37  
(C) 33  
(D) 50

**DIRECTIONS** for questions 17 to 20: Answer the questions on the basis of the information given below.

The MLAs in a state cast their votes for electing the chairman of a certain Public Administration Committee. There were four candidates – Ravi, Aditya, Suraj and Surya – running for the above mentioned post.

Each of the respective constituencies that these MLAs represent is known to have a population of either 1 lakh, or 2 lakh, or 5 lakh. Each MLA gets to cast only one vote. However, the value of the vote of an MLA is determined as one-thousandth of the population of the constituency that he represents. The candidate with the maximum total value of votes cast in his favor will be declared the winner.

The following bar-chart gives the details of the number of MLAs who voted for each of the four candidates, grouped according to the populations of the constituencies of the respective MLAs.



**DIRECTIONS** for question 17: Select the correct alternative from the given choices.

17. Who will be declared the winner?  
(A) Ravi  
(B) Aditya  
(C) Suraj  
(D) Surya

**DIRECTIONS** for question 18: Type in your answer in the input box provided below the question.

18. If these MLAs represent the population of the entire state and every person in the state is represented only by a single MLA, what is the total population (in lakhs) of the state?

**DIRECTIONS for questions 19 and 20:** Select the correct alternative from the given choices.

19. If the rules of counting the votes were changed and the candidate with the maximum number of votes (irrespective of their value) is to be declared the winner, then who will be declared the winner?  
(A) Ravi (B) Aditya (C) Suraj (D) Surya
20. While counting the votes, it was found that, due to an inadvertent error, N votes, all of which were cast in favor of Aditya, were missed out from the above tally and these were then promptly included in the tally, which resulted in Aditya being declared the winner. If it is known that all such votes (included later) were of MLAs representing constituencies of a population of M lakh each, then which of the following combinations could be the values of N and M respectively?  
(A) 9 and 2  
(B) 12 and 2  
(C) 19 and 1  
(D) More than one of the above

**DIRECTIONS for questions 21 to 24:** Answer the questions on the basis of the information given below:

Five persons – Vinay, Pavan, Santosh, Raghu and Govind – ate a certain number of apples and bananas. The number of apples they ate were 2, 3, 5, 7, 8 and the number of bananas they ate were 1, 3, 4, 7 and 9, not necessarily in the same order.

The following information is also known:

- (i) Santosh ate thrice as many bananas as the number of apples Vinay ate.
- (ii) Pavan ate twice as many apples as the number of bananas Raghu ate.
- (iii) Vinay ate two bananas less than the number of apples Santosh ate.
- (iv) Govind ate four apples more than the number of bananas Pavan ate.

**DIRECTIONS for questions 21 to 23:** Select the correct alternative from the given choices.

21. Which of the following statements is true?  
(A) Vinay ate 3 bananas more than the number of apples Govind ate.  
(B) Pavan ate 4 apples.  
(C) Exactly one person ate a total of 6 fruits.  
(D) The difference between the number of apples and bananas eaten by Raghu is six.
22. Which of the following statements is/are true?  
(i) The difference between the number of apples and bananas Vinay ate is zero.  
(ii) The difference between the number of apples and bananas Pavan ate is two.  
(iii) The total number of fruits eaten by Raghu is nine.  
(iv) The number of bananas eaten by Pavan and Santosh together is 14.  
(A) Only (i)  
(B) Only (i) and (ii)  
(C) Only (iv)  
(D) Only (iii) and (iv)

23. Which of the following statements is false?

- (A) Raghu ate four bananas.
- (B) Vinay ate eight apples.
- (C) Govind ate five apples.
- (D) All of the above

**DIRECTIONS for question 24:** Type in your answer in the input box provided below the question.

24. What is the difference between the number of apples eaten by Govind and the number of bananas eaten by Raghu?

**DIRECTIONS for questions 25 to 28:** Answer the questions on the basis of the information given below.

Five students, Abhinav, Akhil, Aman, Anand, and Anurag, were ranked from one to five in five different subjects among English, Hindi, Mathematics, Science, and Social (a numerically lower rank is considered a better rank). No two of the five students received the same rank in any subject and no student got the same rank in any two subjects. It is also known that,

- (i) Anand received third rank in Hindi and he received a better rank than Akhil in only Social and Mathematics.
- (ii) Abhinav received first rank in neither Science nor Hindi but he received second rank in either Social or Mathematics.
- (iii) Anurag received a better rank than Akhil in Social, while the rank received by Anurag in English was the same as that received by Abhinav in Mathematics.
- (iv) Akhil received fourth rank in Science and received a better rank than Abhinav in Mathematics.

**DIRECTIONS for questions 25 and 26:** Select the correct alternative from the given choices.

25. Which rank did Aman receive in Hindi?  
(A) Second  
(B) Third  
(C) Fifth  
(D) Cannot be determined
26. In which of the following subjects did Akhil receive a better rank than Aman?  
(A) English (B) Mathematics  
(C) Science (D) Social

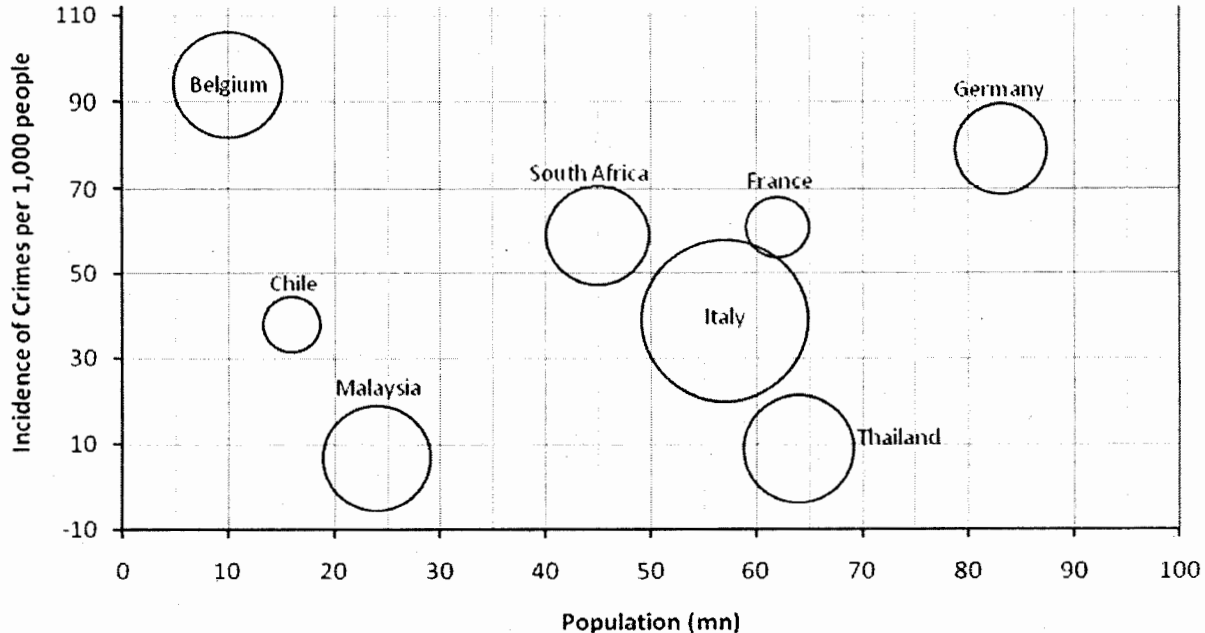
**DIRECTIONS for questions 27 and 28:** Select the correct alternative from the given choices.

27. Who among the five students received the first rank in English?  
(A) Anand (B) Abhinav  
(C) Akhil (D) Anurag
28. Which of the following statements is true?  
(A) Abhinav received a better rank than Aman in Mathematics.  
(B) Anand received the same rank in Science as Anurag did in Social.  
(C) Aman received a better rank in English than Anurag did in Hindi.  
(D) Akhil received a better rank in English than Anurag did in Mathematics.

**DIRECTIONS** for questions 29 to 32: Answer the questions on the basis of the information given below.

Amnesty International conducted a survey across eight countries to analyse the crime statistics in each country during a certain year. It collected information on the Incidence of Crimes per capita and the Number of Policemen per capita present in each country. This information is presented in the bubble chart given below.

- Vertical Axis: The Incidence of Crimes per capita is presented as the number of crimes that occurred per 1,000 people.
- Horizontal Axis: The total population of the country is shown in millions.
- Size of the Bubble: The size (diameter) of the bubble in the chart represents the Number of Policemen per 100,000 people.



**Note:** The number of policemen per 100,000 people is 210 in France and 350 in Belgium.

**DIRECTIONS** for questions 29 to 32: Select the correct alternative from the given choices.

29. Which country had the second highest incidence of crimes during the year?

- (A) Germany (B) Belgium  
(C) France (D) Italy

30. Which of the following countries has the highest number of policemen?

- (A) Italy (B) Germany  
(C) Thailand (D) France

31. Which of the following countries has the maximum incidence of crimes per policeman present in that country?

- (A) Belgium  
(B) Malaysia  
(C) Chile  
(D) France

32. Approximately, what percentage of the population are policemen in Italy?

- (A) 0.55% (B) 2.55%  
(C) 5.55% (D) 1.55%

### SECTION – III

Number of Questions = 34

**DIRECTIONS** for question 1: Type in your answer in the input box provided below the question.

1. If  $x - \frac{1}{x} = 3$ , find the value of  $x^3 - \frac{1}{x^3}$ .

**DIRECTIONS** for questions 2 and 3: Select the correct alternative from the given choices.

2. A certain sum lent under simple interest doubles itself in five years. After how many years will the

sum become four times itself, if the rate of interest at which it is lent is increased by 5 percentage points?

- (A) 12 (B) 16  
(C) 20 (D) 15

3. The value of a stock increased by 15% during the month of January and increased by a further 22% during February. If the value of the stock at the end of March became equal to its value at the beginning of January, by approximately what percentage did the value of the stock decrease during March?

- (A) 40.3% (B) 28.72%  
(C) 32.15% (D) 15.47%

Triumphant Institute of Management Education Pvt. Ltd. (T.I.M.E.) HO: 95B, 2<sup>nd</sup> Floor, Siddamsetty Complex, Secunderabad – 500 003.

Tel : 040-40088400 Fax : 040-27847334 email : info@time4education.com website : www.time4education.com

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**DIRECTIONS for question 4:** Type in your answer in the input box provided below the question.

4. If the average of the first five terms of an arithmetic progression is 4 and the average of the first ten terms is 9, what is the fifteenth term of the progression?

**DIRECTIONS for questions 5 to 8:** Select the correct alternative from the given choices.

5. Ramu had two jars, one of which had 1 litre of 40% milk and the other, 1 litre of 18% milk. If he mixed 300 ml of the former and 700 ml of the latter to form a new solution, what is the ratio of water and milk in the solution?  
(A) 32 : 93 (B) 377 : 123  
(C) 417 : 83 (D) 747 : 253
6. If a cube of side 22 cm is melted and recast to form a sphere, what will be the radius of the sphere? (Assume  $\pi = \frac{22}{7}$ )  
(A)  $\sqrt[3]{2541}$  cm (B)  $\sqrt[3]{2514}$  cm  
(C)  $\sqrt[3]{2451}$  cm (D)  $\sqrt[3]{2415}$  cm
7. A tap fills an empty tank in 8 hours, but due to a leak at the bottom of the tank it took 13 hours instead. If the tap is opened at 6:00 a.m. into the empty tank and then closed at 2:00 p.m., at what time would the tank be empty again?  
(A) 7:00 p.m.  
(B) 3:00 a.m. next day  
(C) 10:48 p.m.  
(D) 02:48 a.m. next day
8. Ten years ago, Lal was twice as old as Ram, whereas  $x$  years hence, Shyam will be twice as old as Lal. If ten years hence, Ram's age will be half the age of Shyam, which of the following values can  $x$  assume?  
(A) 4 (B) 11 (C) 16 (D) 24

**DIRECTIONS for question 9:** Type in your answer in the input box provided below the question.

9. There were some bees in a garden. One-third of them went to the sunflower field; two-fifths of them went to the mustard field and the remaining 16 bees were undecided and returned to their hive. How many bees were there in the garden initially?

**DIRECTIONS for questions 10 to 19:** Select the correct alternative from the given choices.

10. If three runners, A, B and C, start simultaneously from the same point and run around a circular track of length 500 m, in the same direction, at speeds of 5 kmph, 8 kmph and 15 kmph respectively, what is the time taken by them to meet for the first time?  
(A) 60 minutes (B) 30 minutes  
(C) 15 minutes (D) 10 minutes

11. If  $\log_a \left( \frac{4\sqrt[3]{a^3 b^2}}{3\sqrt[3]{a^2 b^2}} \right) + \log_b \left( \frac{5\sqrt[4]{a^4 b^6}}{3\sqrt[4]{a^5 b^2}} \right) = -\frac{13}{15} \log_b a$ , find the value of  $\log_a b$ .  
(A) 2.4 (B) 3.1 (C) 3.7 (D) 4.1

12. A retailer calculated his profit percent based on selling price (instead of cost price) and obtained it as 37.5%. If he had marked up the cost price by 100% before offering a certain discount, what was the percentage discount offered by him?  
(A) 40% (B) 25% (C) 20% (D) 10%

13. If  $x = \frac{1}{4 - \left( \frac{1}{4 + \left( \frac{1}{4 - \left( \frac{1}{4 + \dots} \right)} \right)} \right)}$ , find the value of  $x$ .  
(A)  $\frac{\sqrt{65} - 7}{4}$  (B)  $\frac{-7 - \sqrt{65}}{4}$   
(C)  $7 - 3\sqrt{5}$  (D)  $3\sqrt{5} - 7$

14. Rajesh has a bet with Thomas as to who can eat the maximum number of gulab jamuns in five minutes. Rajesh can eat six gulab jamuns per minute, whereas Thomas can eat eight per minute. The bet starts, but after three minutes, Thomas fell ill and gave up. For at least how many minutes (from the beginning) should Rajesh keep eating, so as to ensure that he wins the bet?  
(A)  $4\frac{1}{6}$  minutes  
(B)  $4\frac{1}{2}$  minutes  
(C)  $4\frac{1}{3}$  minutes  
(D) Rajesh can never win the bet.

15. Find the ratio of the sum of the roots of  $ax^2 + \left(1 + \frac{a}{b}\right)x + \frac{b}{a} = 0$  to the product of the roots of  $ax^2 + (a + b)x + \frac{b}{a} + 1 = 0$ .  
(A) -1 (B)  $-\frac{a}{b}$   
(C)  $-\frac{a^2}{b}$  (D)  $\frac{a}{b}$

16. If  $f(x) = 3x^2$  and  $g(x) = \frac{1}{(f(x))^2}$ , then the value of  $\log_{81}(g(g(3)))$  is  
(A)  $5\frac{1}{2}$  (B) 8 (C) 10 (D)  $15\frac{3}{4}$

- Triumphant Institute of Management Education Pvt. Ltd. (T.I.M.E.) HO: 95B, 2<sup>nd</sup> Floor, Siddamsetty Complex, Secunderabad – 500 003.  
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