

## MICAT 2016 Question Paper with Solutions

<b>Time Allowed :3 Hours</b>	<b>Maximum Marks :100</b>	<b>Total questions :60</b>
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### General Instructions

#### General Instructions:

- i) All questions are compulsory. Marks allotted to each question are indicated in the margin.
- ii) Answers must be precise and to the point.
- iii) In numerical questions, all steps of calculation should be shown clearly.
- iv) Use of non-programmable scientific calculators is permitted.
- v) Wherever necessary, write balanced chemical equations with proper symbols and units.
- vi) Rough work should be done only in the space provided in the question paper.

## **SECTION A**

**1. Deer, Tiger, Kangaroo, Hippopotamus — choose the alternative associated with all four clues.**

- (A) Pouch
  - (B) Stripes
  - (C) Mammals
  - (D) Zoo
  - (E) Australia
- 

**2. Lighting, Character, Stoop, Tone — choose the alternative associated with all four clues.**

- (A) Camera
  - (B) Low
  - (C) Flower Pot
  - (D) Complicated
  - (E) Subdued
- 

**3. Order, Law, Manner, Authority — choose the alternative associated with all four clues.**

- (A) Rules
  - (B) Understanding
  - (C) Stipulation
  - (D) Requirement
  - (E) Excitement
- 

**4. Scare, Phobia, Anxiety, Nausea — choose the alternative associated with all four clues.**

- (A) Temperament
  - (B) Courage
  - (C) Dread
  - (D) Mind
  - (E) Levels
- 

**5. Master, Hyatt, Ceremony, Canyon — choose the alternative associated with all four clues.**

- (A) Famous
  - (B) International
  - (C) Renowned
  - (D) Grand
  - (E) Phenomenal
- 

**6. Sparkle, Hard, Forever, Poker — choose the alternative associated with all four clues.**

- (A) Body
  - (B) Diamond
  - (C) Pearls
  - (D) Petals
  - (E) Girls
- 

**7. Under, Back, Play, Work — choose the alternative associated with all four clues.**

- (A) Field
- (B) Farm
- (C) Ground
- (D) Players
- (E) Sports

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**8. Fictitious, Fixed, Monetary, Toxic — choose the alternative associated with all four clues.**

- (A) Work
- (B) Fraud
- (C) Income
- (D) Character
- (E) Assets

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**9. Fire, Life, General, Cargo — choose the alternative associated with all four clues.**

- (A) Trade
- (B) Risk
- (C) Mitigation
- (D) Insurance
- (E) Transport

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**10. Property, Number, Time, Concern — choose the alternative associated with all four clues.**

- (A) Posh
- (B) Creation
- (C) Engineering
- (D) Prime
- (E) Watch

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**11. Crimson, Vermilion, Magenta, Scarlet — choose the alternative associated with all four clues.**

- (A) Red

- (B) Blue
  - (C) Colours
  - (D) Pigments
  - (E) Shades
- 

**12. Porter, Former, Literate, Scribe — choose the alternative associated with all four clues.**

- (A) Pro
  - (B) Trans
  - (C) Con
  - (D) Off
  - (E) Super
- 

**13. Bank, Act, Letter, Pact — choose the alternative associated with all four clues.**

- (A) Cash
  - (B) People
  - (C) Draft
  - (D) Crime
  - (E) Knowledge
- 

**14. Straight, Down, Cross, Draw — choose the alternative associated with all four clues.**

- (A) Point
  - (B) Issue
  - (C) Matter
  - (D) Line
  - (E) Group
-

**15. Temper, Height, Shares, Story — choose the alternative associated with all four clues.**

- (A) Length
  - (B) Cliff
  - (C) Short
  - (D) Long
  - (E) Security
- 

**16. Heart, Tea, Record, Through — choose the alternative associated with all four clues.**

- (A) Acidity
  - (B) Achievement
  - (C) Gramophone
  - (D) Break
  - (E) Blood
- 

**17. Cobalt, Electric, Sky, Turquoise — choose the alternative associated with all four clues.**

- (A) Lake
  - (B) Complexion
  - (C) Blue
  - (D) Mood
  - (E) Metals
- 

**18. Bar, Salary, Grow, Voice — choose the alternative associated with all four clues.**

- (A) Set
- (B) Rise

- (C) Liquor
  - (D) Raise
  - (E) Crops
- 

**19. Importance, Light, Paper, Gravity — choose the alternative associated with all four clues.**

- (A) Mass
  - (B) Weight
  - (C) Density
  - (D) Length
  - (E) Mathematics
- 

**20. Cord, Industry, Cricket, Rate — choose the alternative associated with all four clues.**

- (A) Circle
  - (B) Music
  - (C) Strike
  - (D) Birds
  - (E) Production
- 

**21. Security, Information, Analysis, Brain — choose the alternative associated with all four clues.**

- (A) Safety
- (B) Ability
- (C) Capacity
- (D) Defence
- (E) Intelligence

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**22. Drawing, Company, Room, Across — choose the alternative associated with all four clues.**

- (A) Painting
- (B) Product
- (C) Store
- (D) Board
- (E) Point

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**23. Birth, Pock, Examination, Bench — choose the alternative associated with all four clues.**

- (A) Certificate
- (B) Pox
- (C) Test
- (D) Desk
- (E) Mark

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**24. Mark, Doubt, Answer, Ask — choose the alternative associated with all four clues.**

- (A) Punctuation
- (B) Suspicion
- (C) Solution
- (D) Question
- (E) Query

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**25. Sprint, Money, Dry, Long — choose the alternative associated with all four clues.**

- (A) Run

- (B) Athletics
  - (C) Job
  - (D) Short
  - (E) Wet
- 

**26. Town, Dressing, Order, Market — choose the alternative associated with all four clues.**

- (A) City
  - (B) Clothes
  - (C) Method
  - (D) Down
  - (E) Village
- 

**27. Temperature, Blood, Vibe, Shoulder — choose the alternative associated with all four clues.**

- (A) Cold
  - (B) Animals
  - (C) Joint
  - (D) Feeling
  - (E) Steam
- 

**28. Tea, Bone, Clay, Republic — choose the alternative associated with all four clues.**

- (A) Pottery
- (B) China
- (C) Sri Lanka
- (D) India
- (E) Muscles

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**29. Side, Fire, Desire, Issue — choose the alternative associated with all four clues.**

- (A) Part
- (B) Rage
- (C) Burn
- (D) Wish
- (E) Topic

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**30. Shooting, Price, Cooking, Voice — choose the alternative associated with all four clues.**

- (A) Gun
- (B) Value
- (C) Range
- (D) Sound
- (E) Kitchen

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**SECTION B**

**1. Choose the option which describes you better:**

- (A) I think help should be given to others only if they need it.
- (B) I am always ready to help the people.

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**2. Choose the option which describes you better:**

- (A) For me, first impression is the last impression as far as a person is concerned.
- (B) I do not judge people on the basis of my first interaction with them.

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**3. Choose the option which describes you better:**

- (A) I feel appreciation encourages people to do better.  
(B) I feel innate skill is enough motivation for people to do better.
- 

**4. Choose the option which describes you better:**

- (A) I generally follow the advice of people who are close to me so that they do not get hurt.  
(B) I follow my own instinct in every situation, regardless of other people's advice.
- 

**5. Choose the option which describes you better:**

- (A) I think I can perform better under pressure.  
(B) I think I can perform better in a relaxed environment.
- 

**6. Choose the option which describes you better:**

- (A) I will give more importance to my principles even if it means immediate loss.  
(B) I will take the decision according to the needs of the situation, even by compromising on principles.
- 

**7. Choose the option which describes you better:**

- (A) At the time of starting the task, I do not think what will happen if it does not get completed on time.  
(B) I try to figure out the consequences of my failure to perform the task on time.
- 

**8. Choose the option which describes you better:**

- (A) I prefer to keep one day in the week as an off, whatever may be the workload.  
(B) I cannot think of an off if the work is pending.

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**9. Choose the option which describes you better:**

(A) If any decision of mine is against the wishes of my seniors, I will still take it but let them know.

(B) If any decision of mine is against the wishes of my seniors, I will take it but will not tell anyone.

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**10. Choose the option which describes you better:**

(A) To enjoy anything, I need company of friends and well-wishers around me.

(B) I enjoy things in solitude.

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**11. Choose the option which describes you better:**

(A) I do believe the news that appears in media on face value.

(B) I take anything that appears in media with a pinch of salt.

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**12. Choose the option which describes you better:**

(A) While interpreting a situation, I generally try to get it verified by others.

(B) I go ahead with my interpretation.

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**13. Choose the option which describes you better:**

(A) I feel that personal and professional parts of life can be totally separated.

(B) I think that personal and professional parts of life get mixed invariably.

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**14. Choose the option which describes you better:**

- (A) According to me, stress is a by-product of sincerity.
  - (B) According to me, if one is sincere, one should not get stressed.
- 

**15. Choose the option which describes you better:**

- (A) According to me, there should be a limit in terms of time and effort to solve any problem.
  - (B) According to me, solution matters, not the time or effort taken to solve it.
- 

**16. Choose the option which describes you better:**

- (A) I always start on the premise that the person in front of me is good.
  - (B) I always start on the premise that the person in front of me can be bad.
- 

**17. Choose the option which describes you better:**

- (A) If I cannot do something that is told by very close people, I cannot tell them so on their faces.
  - (B) If I cannot do anything, I will always make it clear, however close the other person is.
- 

**18. Choose the option which describes you better:**

- (A) I believe that if I am good to other people, they should reciprocate.
  - (B) I believe that if I am good to people, that's all that matters, not the reciprocation.
- 

**19. Choose the option which describes you better:**

- (A) According to me, values should be inculcated by parents in an informal manner.
  - (B) According to me, formal education of values is necessary.
-

**20. Choose the option which describes you better:**

- (A) If two people with whom I am very close fight with each other, I will naturally try to take an initiative to calm things down.
- (B) If people with whom I am close fight with each other, I will not intervene at all.
- 

**21. Choose the option which describes you better:**

- (A) I think admitting your own qualities and shortcomings is not conceit.
- (B) I think one should not blow his own trumpet.
- 

**22. Choose the option which describes you better:**

- (A) I think even at higher levels in one's career, there is exploitation.
- (B) I think exploitation is at lower levels, not at higher levels.
- 

**23. Choose the option which describes you better:**

- (A) I think corruption is present because we tolerate it.
- (B) I think corruption is present because of the system.
- 

**24. Choose the option which describes you better:**

- (A) I think along with the right to do something, right of not doing it is also implicit.
- (B) I think along with right to do, the duty to do it for the right cause is implicit.
- 

**25. Choose the option which describes you better:**

- (A) If somebody is giving me advice about my behaviour, I will question whether he/she follows the same.

(B) For me, good advice is what matters and whether the advisor follows it in real life or not is irrelevant.

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**26. Choose the option which describes you better:**

(A) I think that in today's world, presentation matters more than substance.

(B) I believe that if substance is present, then presentation is meaningful, otherwise not.

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**27. Choose the option which describes you better:**

(A) For me, being pragmatic means making compromises and sometimes making them against my wishes.

(B) For me, being pragmatic means being realistic and assess the situation before taking the decision.

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**28. Choose the option which describes you better:**

(A) When I win a competitive event, I feel sympathetic towards those who have lost.

(B) I do not feel sympathetic about those who have lost against me in competition.

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**29. Choose the option which describes you better:**

(A) I believe that after making efforts with total dedication, things cannot go wrong.

(B) I believe that even if dedication is total, still there are chances that things can go wrong.

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**30. Choose the option which describes you better:**

(A) I believe that being young is a state of mind, whatever is one's age.

(B) I believe that with experience, the innocence associated with youth vanishes.

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**SECTION C**

**1. Some feel that the reason of farmers' suicides is that agriculture, especially in Andhra Pradesh and Maharashtra, which used to be ..... by rain-fed, low cost food crops, has gradually ..... towards the cultivation of cash crops.**

- (A) harvested – tilted
- (B) dependent – gone
- (C) dominated – moved
- (D) centred – turned

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**2. By the time the radio had ..... way for television, every Indian ..... the small screen just as he had the big screen.**

- (A) created – adopted
- (B) paved – lured
- (C) made – embraced
- (D) cleared – took

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**3. The ..... rites of the Black Magic cult were kept secret by the members and were never ..... to outsiders.**

- (A) eclectic – shared
- (B) elusive – known
- (C) esoteric – divulged
- (D) inexplicable – open

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**4. Being a bit hesitant about ..... the man as a complete fraud, I decided to attack the weaker points of his theory, ..... them one by one.**

- (A) denouncing – debunking

- (B) ridiculing – proving
  - (C) castigating – strengthening
  - (D) mocking – destroying
- 

**5. \_\_\_\_\_ is our \_\_\_\_\_ guide to Truth and we allow ourselves to be swept by it.**

- (A) Rationality – trusted
  - (B) Reason – appointed
  - (C) Philosophy – revered
  - (D) Ideology – favourite
- 

**6. Early \_\_\_\_\_ of maladjustment to college culture is \_\_\_\_\_ by the tendency to develop friendship networks outside colleges which mask signals of such maladjustment.**

- (A) treatment – compounded
  - (B) detection – facilitated
  - (C) identification – complicated
  - (D) prevention – helped
- 

**7. Junk: Many of the junk foods in the market today are preferred by children, causing a concern to the parents.**

- (A) not providing nutrition
  - (B) garbage
  - (C) unusable
  - (D) rusty
- 

**8. Key: Behaviour, rather than genetics, may provide the key to reducing a woman's risk of developing type 2 diabetes.**

- (A) Device to open a lock
  - (B) Important
  - (C) Solution
  - (D) Primary
- 

**9. Treat: The Sarod recital by Ustad Amjad Ali Khan was a treat for music lovers.**

- (A) Feast
  - (B) Therapy
  - (C) Behaviour
  - (D) Thing to cherish
- 

**10. Direct: To direct a film is my dream.**

- (A) Conceptualize
  - (B) Straight
  - (C) Figure of Speech
  - (D) Show the way
- 

**11. If one is asked to define the words testimony, charismatic or clandestine, one may face discomfort. Choose the grammatically and semantically correct alternative.**

- (A) One should not be asked to define words like testimony, charismatic or clandestine as one may not be comfortable.
- (B) One should be asked to define words like testimony, charismatic or clandestine even if one is not comfortable.
- (C) One is not comfortable if asked to define words like testimony, charismatic or clandestine.
- (D) One may face difficulty if asked to define words like testimony, charismatic or clandestine.

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**12. The ability to understand main ideas is perhaps the most important factor for good reading skills. Choose the correct rephrased sentence.**

- (A) One cannot develop good reading skills unless and until one develops the ability to understand main ideas.
- (B) One must have the ability to understand main ideas to develop good reading skills.
- (C) The ability to understand main ideas might help the person to develop good reading skills.
- (D) Good reading skills are dependent solely on the ability to understand main ideas.

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**13. America's economy has cooled during recent months. Choose the most grammatically and semantically correct alternative.**

- (A) The American Economy has slowed down considerably during recent months.
- (B) The American Economy's growth rate has reduced slightly of late.
- (C) The American Economy is no longer an attractive or 'hot' economy.
- (D) The American Economy has decided to cool down during recent months.

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**14. Delays in disposals of files are everywhere. Choose the most correct alternative.**

- (A) Everywhere the files get delayed.
- (B) Files do not get cleared on time and that happens everywhere.
- (C) People who deal with the files delay them everywhere.
- (D) Delays in disposals of files are to be expected everywhere.

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**15. Philosophy is a word that has been used in many ways; some wider, some narrower. Choose the most correct alternative.**

- (A) Philosophy has many meanings.

- (B) Philosophy has many applications.
  - (C) As a word, Philosophy can convey a lot of things.
  - (D) Philosophy has many uses.
- 

**16.** 'To give millions knowledge of English is to enslave them. The foundation that Macaulay laid of education has enslaved us. A universal language for India should be Hindi', Gandhi wrote in Hind Swaraj. 'His opposition was not to English but to what it symbolized: political slavery and cultural degradation', according to Arvind Krishna Mehrotra. At various times, Gandhi had especially warned of the dangers involved in taking to English. But ironically for both Gandhi and Nehru, English was an instrument to subjugate the empire rather than a language that enslaved them.

- (A) Gandhi did not discourage serious writers from taking to English.
  - (B) Both of them resolved this paradox to their own benefit.
  - (C) They used the language fluently, like mother tongue.
  - (D) It was really enlightening and enriching.
- 

**17.** Once he was Prime Minister, and then Prime Minister-in-waiting. The scion of India's premier political family, he was a 'VIP' by birth, nurtured in an ambience his fellow citizens could only dream of. But hubris stalked him day and night. For the 40 years it stayed its hand, Rajiv Gandhi was a mere mortal, a pilot working for a living though he lived in a Prime Minister's house.

- (A) But when his star rose, it was a meteoric rise.
  - (B) Then came the tragedy of his mother's assassination.
  - (C) He entered politics after his brother's death with reluctance.
  - (D) For the masses, he was a natural successor.
- 

**18.** In the Indian business landscape, Reliance stands second to none. Dhirubhai Ambani embraced the cult of equity ownership when other industrial barons were preoccupied with

more conservative strategies of perpetuating their control. This ensured the recruitment of a substantial body of shareholders to its cause – an agglomeration of corporate and civic voters with substantial political clout.

- (A) Ambani's style of working the delicate nexus between business and politics was visionary.
- (B) He also made strategic political investments.
- (C) The rising middle class of India could actually dream of a surplus income.
- (D) His rivals were more conventional and orthodox.

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**19.** Some philosophers endorse views according to which there are abstract objects such as numbers, or Universals. (Universals are properties that can be instantiated by multiple objects, such as redness or squareness.) Abstract objects are generally regarded as being outside of space and time, and/or as being causally inert. Mathematical objects, fictional entities and worlds are often given as examples of abstract objects. The view that there really are no abstract objects is called nominalism. Realism about such objects is exemplified by Platonism.

- (A) Other positions include moderate realism and conceptualism.
- (B) These are not mere theories.
- (C) They are attempts to find some meaning in the Universal chaos.
- (D) Indian philosophy has a different take on this.

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**20.** Existentialism is a term applied to the work of a number of 19th- and 20th-century philosophers who, despite profound doctrinal differences, generally held that the focus of philosophical thought should be to deal with the conditions of existence of the individual person and his or her emotions, actions, responsibilities, and thoughts. The early 19th-century philosopher Soren Kierkegaard, posthumously regarded as the father of existentialism, maintained that the individual is solely responsible for giving one's own life meaning and living that life passionately and sincerely, in spite of many existential obstacles

and distractions including despair, angst, absurdity, alienation, and boredom. Subsequent existential philosophers retain the emphasis on the individual, but differ in varying degrees on how one achieves and what constitutes a fulfilling life, what obstacles must be overcome, and what external and internal factors are involved, including the potential consequences of the existence or non-existence of God.

(A) Many existentialists have also regarded traditional systematic or academic philosophy, in both style and content, as too abstract and remote from concrete human experience.

(B) Existentialism became fashionable in the post-World War years as a way to reassert the importance of human individuality and freedom.

(C) Literature and Art have been influenced by Existentialist thoughts for a long time.

(D) Franz Kafka and Albert Camus are regarded as the examples of Pre-World War II and Post-World War II Existentialist views.

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### **Passage**

Knowledge emerges out of perceived lacunae in existing fields and the pioneering futuristic ideas of enterprising and creative minds. The social sciences emerged in the nineteenth century out of this perceived need to tackle the newer and varied issues emerging in society due to industrialization. Various disciplines of social sciences emerged out of the felt need that specialized and differentiated disciplines required to be created to address the range of problems being thrown up by dramatic changes in society.

Thus, Political Science and Public Administration grew out of the necessity to understand and tackle the problems resulting from the transformation in the relationship between the individual, political and administrative aspects of the society and the state. The study of Political History, Political Theory, State, Ideology, Political Institutions, Administrative theories, Bureaucracy and its institutions, etc. was started to gain insights into the processes of government with the intention of improving the conditions in society.

However, it was perceived that this historical, descriptive study of political and administrative structures and institutions did not sufficiently help to alter or improve individual and societal conditions. While these studies were contributing to academic

analysis, they did not have a direct impact on improving the quality of human life. It was more or less accepted that social sciences had little or no practical application. This realization made the scholars feel that social sciences should provide solutions or at least approach the actual problems of the society.

Early in the twentieth century, the thought of applying the research methods of Pure Sciences in social sciences to bring about change in them came forward. To an extent, emphasis on empirical investigation and scientific methodology did lead to clear quantifiable results in a few areas like Psychology, Economics and Management. The relevance of social science research and its increasing applicability was amply demonstrated after 1920s. Increasingly, social sciences were seen to be emerging out of their ivory tower of metaphysical and theoretical constructs to handle common problems and issues.

Economics was the first discipline to find acceptance in both the government and the general public. The World War I and its repercussions were well analyzed and managed by economists, who found acceptance in the corridors of political decision-making. After the Great Depression, it became an integral part of all government offices. Further, theories of Psychology and Sociology, which until recently were bound within the confines of libraries and universities, were getting used to explain and tackle various issues in societies.

Sociological theories, Psychological experiments and Economic Policies were creating new frontiers and boundaries for social sciences, leading to two developments. On one hand, recognizing the potential for growth, these disciplines were experimenting on novel and innovative themes and concepts which could directly be used by the society. On the other hand, the State and its governing organs were looking forward to the academicians to provide the non-state actors with the solutions and alternatives to handle practical issues in the society.

The interwar period and the World War II were charting new fields and parameters for the social sciences, which could handle various tasks effectively and efficiently. Managing the socio-economic problems of the Great Depression, financing of the war, logistics, communication mechanisms during the war, administrative organization, resource allocation, rehabilitation, political accountability - these were the prime issues of this time and they showed the prospects for the Social Sciences.

Scholars began to deliberate the prospects of pooling knowledge, insights and methodologies in order to resolve common tasks and issues. Higher education, specialization and research in newer areas like decision making, scientific management, operations research, decision theory, etc. contributed in extending the scope and focus of the social sciences in 1930s and 1940s. The need and opportunity for the emergence of a new discipline dedicated to Problem Solving arose out of these conditions. The idea was a concretization of the mood at those times which were seriously grappling with the material, physical, financial, psychological, intellectual, social, philosophical, individual and societal implications of the World War II.

**21. Which of the following would be the most appropriate heading for this paragraph?**

- (A) Social Sciences – From Abstract to Real
- (B) The Emergence of Social Sciences
- (C) Coming of Age for Social Sciences
- (D) Social Sciences – Impacts and Influences

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**22. What can be the most appropriate reason for economics being the first Social Science to be accepted as a discipline for practical purposes?**

- (A) The Great Depression
- (B) World War I
- (C) World War II
- (D) Inter-War years

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**23. What is the most important reason for the evolution of Social Sciences?**

- (A) Theoretical and Metaphysical constructs
- (B) Industrialization
- (C) Empirical Methods
- (D) Problems of the Society

**24. With respect to this passage, which of the following statements is definitely NOT true?**

- (A) Social Sciences have come a long way since their origin.
  - (B) Social Sciences have provided solutions to many pressing problems.
  - (C) Social Sciences have to provide solutions to social problems.
  - (D) Both the World Wars have contributed a lot to Social Sciences.
- 

**25. The author of this passage definitely agrees with which of the following statements?**

- (A) Social Sciences are not dependent on empirical research like Pure Sciences.
  - (B) Social Sciences can predict the future.
  - (C) Social Sciences should combine the resources.
  - (D) Every problem had added to the understanding of the social sciences.
- 

## **SECTION D**

Seven people – Praful, Ganesh, Ravi, Sandeep, Dilip, Umesh and Lucky – are sitting in a row, not necessarily in the same order. Praful is to the left of Ganesh, who is to the immediate left of Sandeep. There is exactly one person between Ravi and Dilip. Umesh is at the extreme left end of the row. Lucky is sitting two places away to the left of Ganesh.

**1. Who are sitting adjacent to Lucky?**

- (A) Dilip and Ganesh
  - (B) Sandeep and Praful
  - (C) Ravi and Dilip
  - (D) Ravi and Praful
- 

**2. Who is sitting at the extreme right end of the row?**

- (A) Sandeep

- (B) Ravi
  - (C) Dilip
  - (D) Lucky
- 

**3. Who is sitting to the immediate left of Ganesh?**

- (A) Dilip
  - (B) Ravi
  - (C) Sandeep
  - (D) Cannot be determined
- 

**4. Who is sitting at the second place from the left end of the row?**

- (A) Ganesh
  - (B) Praful
  - (C) Ravi
  - (D) Lucky
- 

**5. Raju walks 30 metres North. He turns left and walks 30 metres. He turns left again and walks 60 metres. He then walks 70 metres left. After this, he turns left again and walks 60 metres and then stops. How far (in metres) is he from his starting point?**

- (A) 30
  - (B) 40
  - (C) 50
  - (D) 60
- 

There are 3 stretches in a race – X, Y and Z, each of which is 4 km long. The following table shows the mode of coverage of each stretch and the maximum and the minimum speeds of covering them.

Stretch	Coverage Mode	Minimum Speed (in kmph)	Maximum Speed (in kmph)
X	Bicycle	20	25
Y	Motorcycle	40	50
Z	Car	50	75

Each stretch is covered at a constant speed. The previous record in completing the race was 22 minutes.

**6. Rahul travelled at the minimum speed by bicycle as well as motorcycle. If he did not break the previous record, his speed (in kmph) over stretch Z cannot exceed:**

- (A) 50
- (B) 52
- (C) 56
- (D) 60

**7. Rahul travelled stretch X taking the maximum possible time. The time taken for him to cover stretch Z is  $66\frac{2}{3}\%$  less than the time taken to travel stretch X. If he took  $46\frac{1}{11}\%$  less time to complete the race than the previous record, then find the speed at which he has travelled stretch Y (in kmph).**

- (A) 42
- (B) 44
- (C) 46
- (D) 48

**8. Rahul's overall average speed is  $\frac{450}{11}$  kmph. His speed over stretch X was  $\frac{5}{12}$ th of his average speed over stretches Y and Z together. Find his speed over stretch X (in kmph).**

- (A) 22
- (B) 24
- (C) 25

(D) 28

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**9. Ram and Shyam, two magicians, present a magic-show together. Ram triples every red flower in 10 seconds and Ravi doubles every yellow flower in 10 seconds. If after a minute there were 1049 red and yellow flowers, how many flowers were there initially?**

(A) 5

(B) 6

(C) 7

(D) 8

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**10. In how many ways can 4 boys be seated on 10 different chairs in a row?**

(A) 720

(B) 1080

(C) 3080

(D) 5040

---

**11. A bag contains 7 white and 8 red balls. If 10 balls are drawn at random from the bag, what is the probability that 6 balls are white and the rest are red?**

(A)  $\frac{1}{4}$

(B)  $\frac{70}{429}$

(C)  $\frac{3}{5}$

(D)  $\frac{35}{143}$

---

**12. The investments of P and Q are Rs.5000 and Rs.6000 respectively. P takes Rs.20 as monthly salary for running the business and the remaining profit is divided based on the investments. If P got a total of Rs.640, then how much does Q get in the total profit?**

- (A) Rs.460
  - (B) Rs.480
  - (C) Rs.500
  - (D) Rs.520
- 

**13. The angles of elevation of an electric pole from two points A and B lying on the level ground on either side of the pole are  $30^\circ$  and  $60^\circ$  respectively. If the two points A and B are 500 m apart, then at what distance from point A is the electric pole?**

- (A) 120 m
  - (B) 125 m
  - (C) 375 m
  - (D) 380 m
- 

**14. In an election in which there were only two candidates A and B, B got 50% of the votes that A got. Had A got 200 votes less, there would have been a tie. How many people cast their votes in all?**

- (A) 800
  - (B) 1000
  - (C) 1200
  - (D) 1600
- 

**15. If the numerator and the denominator of a fraction are each decreased by 3, the fraction becomes  $\frac{2}{3}$ . If both the numerator and the denominator are increased by 7, the fraction becomes  $\frac{3}{4}$ . Find the fraction.**

- (A)  $\frac{23}{33}$
- (B)  $\frac{13}{33}$
- (C)  $\frac{11}{3}$

(D) None of these

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**16. Ten years from now, the age of Raja's father will be twice Raja's age. Ten years ago, the age of Raja's father was thrice Raja's age. Find the present age of Raja and his father.**

- (A) Raja is 30 and his father is 60
  - (B) Raja is 40 and his father is 70
  - (C) Raja is 30 and his father is 70
  - (D) Raja is 40 and his father is 60
- 

**A metal weighs 1500 kg per cubic metre and another metal weighs 2500 kg per cubic metre. These two metals are mixed to form an alloy.**

**17. Find the weight of 5 cubic metres of an alloy formed by mixing 40% of the first metal and 60% of the second metal.**

- (A) 8,250 kg
  - (B) 9,500 kg
  - (C) 10,500 kg
  - (D) 12,250 kg
- 

**18. In what proportion should both the metals be mixed to form an alloy with equal weights of both the metals?**

- (A) 3:5
  - (B) 5:3
  - (C) 3:2
  - (D) 4:3
-

**19. If 5 cubic metres of the first metal is mixed with 1 cubic metre of the second metal to form an alloy, then what percent is the weight of the second metal?**

- (A) 25%
  - (B) 50%
  - (C) 75%
  - (D) 35%
- 

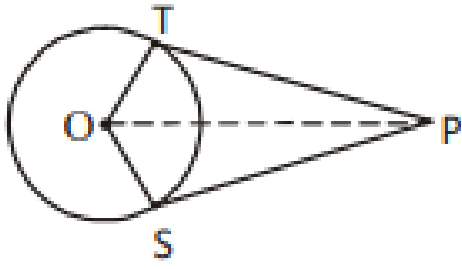
**20. If 6000 kg of the first metal is mixed to form an alloy having 60% of the second metal by volume, then find the volume of the alloy.**

- (A) 10 cubic metres
  - (B) 7 cubic metres
  - (C) 8 cubic metres
  - (D) 10 cubic metres
- 

**21. If the weight of the first metal was 2000 kg per cubic metre and the weight of the second metal remains unchanged, and the alloy contains 25% of the first metal by volume, then find the volume of the second metal in the alloy. (The weight of the first metal in the alloy = 10000 kg)**

- (A) 10 cubic metres
  - (B) 15 cubic metres
  - (C) 20 cubic metres
  - (D) 12 cubic metres
- 

**22. In a circle with centre O, PT and PS are tangents drawn to it from point P. If PT = 24 cm and OT = 10 cm, then find the length of PO.**



- (A) 26 cm
  - (B) 28 cm
  - (C) 30 cm
  - (D) 32 cm
-