GATE 2024

Question Paper | Answer Key

Graduate Aptitude Test in Engineering (GATE) is a prestigious national-level exam that assesses candidates for comprehensive understanding in various undergraduate-level subjects in Engineering, Technology, Science, Architecture, and Humanities.

aglasem.com

General Aptitude (GA)

Q.1 – Q.5 Carry ONE mark Each

Q.1	If '→' denotes increasing order of intensity, then the meaning of the words [simmer → seethe → smolder] is analogous to [break → raze → _____]. Which one of the given options is appropriate to fill the blank?
(A)	obfuscate
(B)	obliterate
(C)	fracture
(D)	fissure

GATE 2024

Q.2	In a locality, the houses are numbered in the following way: The house-numbers on one side of a road are consecutive odd integers starting from 301, while the house-numbers on the other side of the road are consecutive even numbers starting from 302. The total number of houses is the same on both sides of the road. If the difference of the sum of the house-numbers between the two sides of the road is 27, then the number of houses on each side of the road is
(A)	27
(B)	52
(C)	54
(D)	26
Q.3	For positive integers p and q, with $\frac{p}{q} \neq 1$, $\left(\frac{p}{q}\right)^{\frac{p}{q}} = p^{\left(\frac{p}{q}-1\right)}$. Then,
(A)	$q^p = p^q$
(B)	$q^p = p^{2q}$
(C)	$\sqrt{q} = \sqrt{p}$
(D)	$\sqrt[p]{q} = \sqrt[q]{p}$

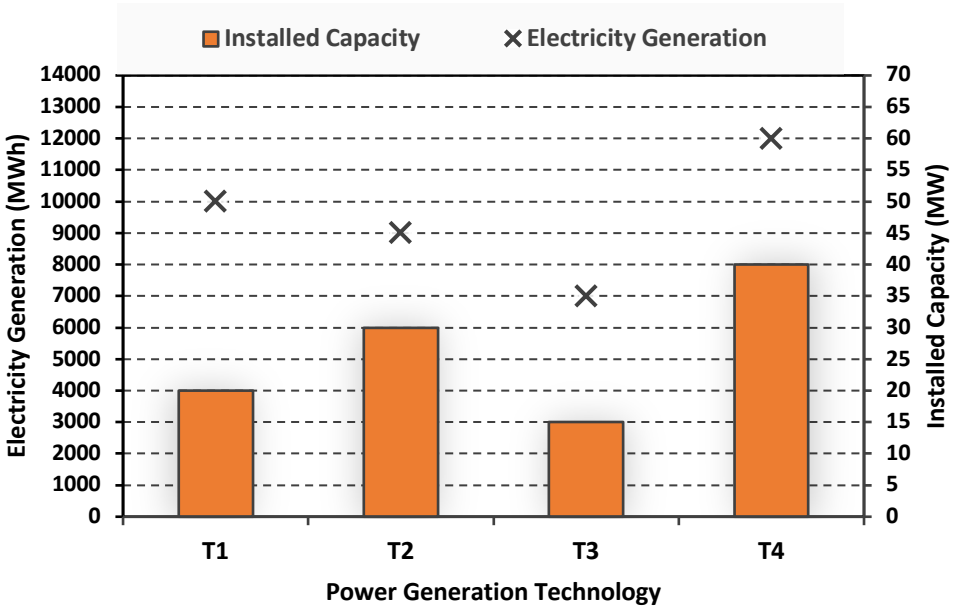
Q.4	Which one of the given options is a possible value of x in the following sequence? 3, 7, 15, x, 63, 127, 255
(A)	35
(B)	40
(C)	45
(D)	31
Q.5	On a given day, how many times will the second-hand and the minute-hand of a clock cross each other during the clock time 12:05:00 hours to 12:55:00 hours?
(A)	51
(B)	49
(C)	50
(D)	55

Q.6 – Q.10 Carry TWO marks Each

Q.6	In the given text, the blanks are numbered (i)–(iv). Select the best match for all the blanks. From the ancient Athenian arena to the modern Olympic stadiums, athletics (i) _____ the potential for a spectacle. The crowd (ii) _____ with bated breath as the Olympian artist twists his body, stretching the javelin behind him. Twelve strides in, he begins to cross-step. Six cross-steps (iii) _____ in an abrupt stop on his left foot. As his body (iv) _____ like a door turning on a hinge, the javelin is launched skyward at a precise angle.			
(A)	(i) hold	(ii) waits	(iii) culminates	(iv) pivot
(B)	(i) holds	(ii) wait	(iii) culminates	(iv) pivot
(C)	(i) hold	(ii) wait	(iii) culminate	(iv) pivots
(D)	(i) holds	(ii) waits	(iii) culminate	(iv) pivots

Q.7	Three distinct sets of indistinguishable twins are to be seated at a circular table that has 8 identical chairs. Unique seating arrangements are defined by the relative positions of the people. How many unique seating arrangements are possible such that each person is sitting next to their twin?
(A)	12
(B)	14
(C)	10
(D)	28

GATE 2024

Q.8	The chart given below compares the Installed Capacity (MW) of four power generation technologies, T1, T2, T3, and T4, and their Electricity Generation (MWh) in a time of 1000 hours (h).  The Capacity Factor of a power generation technology is: $$\text{Capacity Factor} = \frac{\text{Electricity Generation (MWh)}}{\text{Installed Capacity (MW)} \times 1000\ \text{(h)}}$$ Which one of the given technologies has the highest Capacity Factor?
(A)	T1
(B)	T2
(C)	T3
(D)	T4

Q.9	In the 4 × 4 array shown below, each cell of the first three columns has either a cross (X) or a number, as per the given rule. 1 1 2 ☐ 2 X 3 ☐ 2 X 4 ☐ 1 2 X ☐ **Rule:** The number in a cell represents the count of crosses around its immediate neighboring cells (left, right, top, bottom, diagonals). As per this rule, the **maximum** number of crosses possible in the empty column is
(A)	0
(B)	1
(C)	2
(D)	3

Q.10	During a half-moon phase, the Earth-Moon-Sun form a right triangle. If the Moon-Earth-Sun angle at this half-moon phase is measured to be 89.85°, the ratio of the Earth-Sun and Earth-Moon distances is closest to
(A)	328
(B)	382
(C)	238
(D)	283

GATE 2024

Reasoning and Comprehension (XH-B1)

XH-B1: Q.11– Q.17 Carry ONE mark Each

Q.11	Amma's tone in the context of the given passage is that of:
	For Amma, the difference between men and women was a kind of discrimination and inequality; she felt strongly about women's rights but was not familiar with concepts like gender and patriarchy. She would have dismissed Betty Friedan because she was predominantly dealing with the problems of white middle-class women in the United States. Amma, and women of her generation, could de-link the oppression of women from the wider struggle for the liberation of human beings from class exploitation and imperialism. So Amma continued to play her role as mother and wife, but would often complain: 'I am a doormat on which everyone wipes their emotional dirt off'.
(A)	Compromise
(B)	Protest
(C)	Contentment
(D)	Resignation

Q.12	Fill in the blanks by choosing the correct sequence for the following passage:
	I am wearing for the first time some (i)_____ that I have never been able to wear for long at a time, as they are horribly tight. I usually put them on just before giving a lecture. The painful pressure they exert on my feet goads my oratorical capacities to their utmost. This sharp and overwhelming pain makes me sing like a nightingale or like one of those Neapolitan singers who also wear (ii)____ that are too tight. The visceral physical longing, the overwhelming torture provoked by my (iii)_____, forces me to extract from words distilled and sublime truths, generalized by the supreme inquisition of the pain my (iv)____ suffer.
(A)	(i) patent-leather belt (ii) belts (iii) patent-leather belt (iv) waist
(B)	(i) patent-leather shoes (ii) bands (iii) patent-leather bands (iv) wrist
(C)	(i) patent-leather shoes (ii) shoes (iii) patent-leather shoes (iv) feet
(D)	(i) patent-leather jacket (ii) jacket (iii) patent-leather jacket (iv) body

Q.13	The appropriate synonym for the word ‘ignite’ in the following passage will be:
	Spirituality must be integrated with education. Self-realization is the focus. Each one of us must become aware of our higher self. We are links of a great past to a grand future. We should ignite our dormant inner energy and let it guide our lives. The radiance of such minds embarked on constructive endeavor will bring peace, prosperity and bliss to this nation.
(A)	Encourage
(B)	Simulate
(C)	Dissipate
(D)	Engross

Q.14	Which of the following sentences is punctuated correctly?
(A)	One day, I'll write a book, 'I said'. Not just a thriller but a real book, about real people.
(B)	'One day I'll write a book', I said, 'not just a thriller, but a real book, about real people.'
(C)	'One day I'll write a book', I said. 'Not just a thriller but, a real book, about real people'.
(D)	'One day I'll write a book', I said, not just a thriller, but a real book, about real people.'

Q.15	Fill in the blanks with the correct combination of tenses for the given sentence:
	Darwin's work (i)_____ a related effect that (ii)_____ influenced the development of environmental politics – a 'decentering' of the human being.
(A)	(i) have (ii) had
(B)	(i) had (ii) have
(C)	(i) had (ii) has
(D)	(i) has (ii) have

Q.16	Which of the following options holds similar relationship as the words, 'Music: Notes'?
(A)	Water: Cold drink
(B)	Paper: Class Notes
(C)	House: Bricks
(D)	Graphite: Charcoal

Q.17	In a particular code, if "RAMAN" is written as 52 and "MAP" is written as 33, then how will you code "CLICK"?
(A)	37
(B)	43
(C)	51
(D)	38

XH-B1: Q.18 – Q26 Carry TWO marks Each

Q.18	On the basis of the statements given below, which valid assumption(s) can be made?
	Statements: • Life has suffering • Desire is the cause of suffering • The end of desire is the end of suffering • Desire can be reduced by following the noble eightfold path Assumptions: 1. Suffering is because of wants 2. Life is not always full of suffering 3. The eightfold path can reduce suffering 4. Suffering is caused by life
(A)	Only 1, 3 and 4
(B)	Only 1, 2 and 3
(C)	Only 1 and 4
(D)	Only 2 and 3

Q.19	If ‘KARAMCHAND’ is coded as ‘ICPCKEFCLF’ what should be the code of ‘CREATION’?
(A)	ATCCRKMP
(B)	ETGCVKQP
(C)	APCCRJMP
(D)	ETCGKRPM

GATE 2024

Q.20	Given an input line of numbers and words, a machine rearranges them following a particular rule in each step. Here is an illustration of an input and rearrangement sequence (Step 1 to Step 5): Input: 61 wb ob 48 45 29 34 sb pb lb Step 1: lb wb ob 48 45 29 34 sb pb 61 Step 2: lb ob wb 45 29 34 sb pb 61 48 Step 3: lb ob pb wb 29 34 sb 61 48 45 Step 4: lb ob pb sb wb 29 61 48 45 34 Step 5: lb ob pb sb wb 61 48 45 34 29 Step 5 is the last step of the above arrangement. Based on the rules followed in the above steps, answer the following question: Input: cb kb eb 58 49 23 38 jb nb gb 69 82 Which of the following represents the position of 58 in the fourth step? (Step-5 is the last step of the arrangement.)
(A)	Second from the left
(B)	Fourth from the right
(C)	Third from the right
(D)	Seventh from the left

Q.21	In a certain type of code, ‘they play cricket together’ is written as ‘mv kb lb iv’; ‘they score maximum points’ is written as ‘gb lb mb kv’; ‘cricket score earned points’ is written as ‘mb gv kb kv’ and ‘points are earned together’ is written as ‘kv mv ob gv.’ What is the code for ‘earned maximum points’?
(A)	gv gb kv
(B)	mv kb mb
(C)	lb iv ob
(D)	ob mb iv

GATE 2024

Q.22	Which of the statement(s) about the passage weaken(s) the argument presented?
	Scientists associate large brains with greater intelligence. However, in the evolutionary context it has also been identified that beyond a point, the size of the brain has not increased and yet after a particular period, in spite of no significant change in brain size humans have made significant progress. Certain researchers propose that this is because, while the overall brain size may not have changed, marked structural changes can be noticed in specific structures that run parallel to increase in human intelligence.
(A)	Recent studies refute the hypothesis that region-specific brain development is necessarily associated with rapid human progress
(B)	Neanderthal people's extinction was probably because of their brain size
(C)	Homo Sapiens and its destruction in the future may happen because of its rapid brain development
(D)	Recent studies show that Neanderthal people, with relatively smaller brains, were capable of complex language and social activities

Q. 23	The narrator's use of 'I' in the given passage is/are:
	I have never been any good at the more lurid sort of writing. Psychopathic killers, impotent war-heroes, self-tortured film stars, and seedy espionage agents must exist in the world, but strangely enough I do not come across them, and I prefer to write about the people and places I have known and the lives of those whose paths I have crossed. This crossing of paths makes for stories rather than novels, and although I have worked in both mediums, I am happier being a short-story writer than a novelist.
(A)	Self-conscious
(B)	Apologetic and regretful
(C)	Confessional and communicating
(D)	Egotistical and vain

Q.24	Which of the following recommended action(s) seem to be appropriate with the stated problem?
	Stated problem : Many students at educational institutes do not attend classes in the post-pandemic scenario.
(A)	Disciplinary action against all students should be taken as a warning.
(B)	Counselling sessions should be organized to address the issues such students face.
(C)	Surveys should be conducted to identify the reasons for their absence.
(D)	Course content should immediately be changed.

Q.25	Read the passage and identify the statement(s) which follow(s) from it:
	The purpose of this work is to inform educators about the brain science related to emotion and learning, and, more important, to offer strategies to apply these understandings to their own teaching. Although many of the approaches I describe will be familiar, integrating the lens of emotion and the brain may be a new concept. As an educator I had been trained in how to deliver content and organize my lessons, but I had not been taught how to design learning experiences that support emotions for learning.
(A)	The author wishes, through his work, to inform us about brain science and learning.
(B)	The author, through his work, wishes to offer strategies to apply our learnings to our teaching.
(C)	The author feels that the newness of his approach lies in linking emotion oriented approach to brain.
(D)	The author wants to use emotions as a strategy for learning.

Q.26	If A says that his mother is the daughter of B's mother, then how is B related to A?
(A)	Uncle
(B)	Aunt
(C)	Father
(D)	Brother

Sociology (XH-C6)

XH-C6: Q.27 – Q.44 Carry ONE mark Each

Q.27 Fill in the blank with the correct option.

According to Thomas Kuhn, activities of normal science are like puzzle solving, since they seek to reach _____that include solving instrumental, conceptual and methodological problems within the confines of certain rules.

(A) new conclusions in existing ways

(B) existing conclusions in new ways

(C) new publishers

(D) new junior researchers

Q.28 'We are constantly doing gender without realizing it.'

Select one of the given options that best explains the above statement.

(A) We socially construct our behaviours to perform our gender roles.

(B) Biological sex determines our gender identities.

(C) Gender is not a performance; it is an identity.

(D) Gender performance is about individual determinism.

Q.29 Normal distribution is widely used in quantitative analysis in social sciences. Which of the given statements is **NOT** correct about the normal distribution?

(A) Most of the observed data is clustered near the mean.

(B) 70.2% of the cases fall under +/- of one standard deviation.

(C) Values of mean, media and mode shall be same.

(D) Distribution is symmetrical in nature.

Q.30 Which one of the given statements is **NOT** correct?

(A) Factor analysis is used to group the attributes of the respondents.

(B) Logistic regression is used to predict values of dependent variable using independent variables.

(C) Sociologists do undertake quantitative analysis.

(D) Cluster analysis is used to group the respondents using the attributes.

Q.31 Fill in the blank with the correct option.

According to Ray Oldenberg, _____ are social surroundings different from home and workplaces which are important for civil society, democracy and civic engagement.

(A) Instagram and YouTube

(B) Villages

(C) Third places

(D) Districts

Q.32 Fill in the blank with the correct option.

Paul Lazarfield and Robert Merton coined the term _____ to explain the phenomenon wherein media provides massive amount of coverage that the audience becomes numb and fails to act on the information, regardless of how compelling the issue.

(A) dysfunctional media

(B) narcotizing dysfunction

(C) manufacturing consent

(D) echo chamber

Q.33 Fill in the blank with the correct option.

According to Max Weber, social stratification is a function of _____.

(A) economic factors only

(B) economic and social factors

(C) honour and status only

(D) political power and status only

Q.34 Fill in the blank with the correct option.

According to Durkheim, collective consciousness and division of labour in a given society would be _____ to each other.

(A) directly related

(B) inversely related

(C) not related

(D) dialectically related

Q.35 Fill in the blank with the correct option.

_____ argued for a shift in social movements post-1968 towards questions of self-management and technologies of rule as central driving concerns, analyzing these movements as struggles over the self-production of society.

(A) Eric Hobsbawm

(B) Alain Touraine

(C) Henri Lefebvre

(D) Michel Foucault

Q.36 The recognition that social identities are multi-layered, often overlapping, and non-discrete, comes from which of the following conceptual frameworks?

(A) Multiple sovereignties

(B) Sanskritization

(C) Intersectionality

(D) Social Diffusion

Q.37 Fill in the blank with the correct option.

The movement against _____ dam in India has contributed significantly to the formation of the World Commission on Dams.

(A) Koel Karo

(B) Tehri

(C) Sardar Sarovar

(D) Subansiri

Q.38 Which thinker is associated with the concept of participatory development?

(A) André Béteille

(B) Robert Chambers

(C) Andre Gunder Frank

(D) Robert Putnam

Q.39 Select the option that best describes 'petty commodity producers' in the context of the agrarian economy in India.

(A) They are family-based operations that occasionally hire in /hire out some labour.

(B) They do not own land and work as reverse tenants.

(C) They produce only for fulfilling their subsistence needs.

(D) Their presence is restricted to adivasi-dominated areas.

Q.40 Despite the constitutional provision of equality of all citizens before the law, in practice, Dalits are often excluded from access to common property resources and public spaces (e.g., pastures, water resources etc.)

Which theorist's conceptualization of power best explains this scenario?

(A) Emile Durkheim

(B) Talcott Parsons

(C) Ralph Dahrendorf

(D) Edmund Leach

Q.41 Governmentality, as defined by Michel Foucault, refers to which one of the following conceptual ideas?

(A) Strategic essentialism

(B) Substantial equivalence

(C) Technologies of the self

(D) Individualization of risk

Q.42 Fill in the blank with the correct option.

'Theoretical Brahmins and empirical Shudras' is a phrase used by _____ to castigate the Indian social sciences.

(A) Sharmila Rege

(B) Gail Omvedt

(C) Gopal Guru

(D) Kancha Ilaiah

Q.43 Which of the following statement(s) is / are correct?

(A) 'Book view' refers to an understanding of rural India through a study of texts.

(B) 'Field view' refers to a perspective of rural India obtained through Indologists and historians.

(C) Indologists have described the village as 'sink of localism'.

(D) The term 'village republic' was used to describe the thriving, interconnected traditional rural economy with strong linkages with the city.

Q.44 Select the option(s) that best describe(s) the term 'gentrification.'

(A) The transformation of an urban neighbourhood when affluent people move to poor and working-class areas of the city.

(B) The process of ghettoization of working-class neighbourhoods.

(C) The process of feminization of the neighbourhood.

(D) The process of urban gentry migrating to rural areas.

XH-C6: Q.45 – Q.65 Carry TWO marks Each

Q.45 Fill in the blanks with the correct option.

Hochschild's book, 'The Managed Heart' on _____ is based on a study of _____ and _____.

(A) emotional labour; flight attendants; receptionists

(B) emotional labour; receptionists; bill collectors

(C) emotional labour; flight attendants; bill collectors

(D) emotions; actors; lyricists

Q.46 Fill in the blanks with the correct option.

According to Granovetter, strong ties are important for _____, and weak ties are valuable for gaining access to _____.

(A) emotional support; new information and opportunities

(B) monetary support; new information and opportunities

(C) social support; economic support

(D) monetary support; marital alliances

Q.47 Fill in the blanks with the correct option.

A researcher wants to study college students' usage of dating applications in their mobile phones. She had contacted the first 100 students in front of the library. 20 of them did not have a mobile phone. Out of the rest, 20 refused to fill the survey questionnaire. The incidence rate and response rate for the study are _____ and _____ respectively.

(A) 75% & 80%

(B) 80% & 60%

(C) 80% & 75%

(D) 60% & 80%

Q.48 Select the option that has the correct pairing of person and contribution.

Person			Contribution	
Laud Humphreys	M		Italian American Community	X
William Foote-Whyte	N		Tearoom Trade	Y
Elton Mayo	O		Worker Productivity	Z

(A) MY; NZ; OX

(B) MZ; NX; OY

(C) MX; NY; OZ

(D) MY; NX; OZ

Q.49 Select the option that has the correct pairing of author and concept.

Author			Concept	
Bronislaw Malinowski	L		Sociological imagination	Q
Erving Goffman	M		Imponderabilia of everyday life	R
Claude Levi-Strauss	N		Matrimonial strategies	S
Pierre Bourdieu	O		Generalized exchange	T
			Social performance	U

(A) LT; MU; NS; OR

(B) LR; MU; NT; OS

(C) LU; MQ; NT; OS

(D) LR; MU; NS; OT

Q.50 Fill in the blank with the correct option.

According to Victor Turner, 'rites of passage' are defined as rituals of _____.

(A) revelation

(B) transition

(C) subversion

(D) communication

Q.51 When Hurricane Katrina hit the United States in 2005, affluent and poor people alike became its victims. However, those who did not own automobiles were less able than others to evacuate in advance of the storm.

Which conclusion can be inferred from the above paragraph?

(A) Class position affects people's vulnerability to natural disasters.

(B) Automobile ownership is a hindrance to evacuation.

(C) Affluent people were more affected by Hurricane Katrina because they had to return to their homes filled with debris.

(D) Evacuation processes did not take into account the gendered dimensions of class.

Q.52 Select the option that has the correct pairing of book title and key contribution.

Book Title	
Elementary Aspects of Peasant Insurgency in Colonial India	L
The Non-Party Political Process	M
Reinventing Revolution: New Social Movements and the Socialist Tradition in India	N
Nine Theses on Social Movements	O

Key Contribution	
Distinction between social and political movements	Q
Critique of nationalist and Marxist historiography	R
New arenas of counter-action in the wake of diminishing legitimacy of the state in the project of social transformation	S
Emergence of movements based in identities other than social class	T

(A) LT; MQ; NR; OS

(B) LR; MS; NT; OQ

(C) LT; MS; NQ; OR

(D) LR; MQ; NT; OS

Q.53 According to Homans, the more often in the recent past a person has received a particular reward, the less valuable any further unit of that reward becomes for that person.

Select the option(s) that do(es) **NOT** reflect the above.

(A) Deprivation / satiation proposition

(B) Stimulus proposition

(C) Rationality proposition

(D) Value proposition

Q.54 Which of the following is / are associated with scientific management?

(A) Non separation of mental and manual labour

(B) Subdivision of tasks

(C) Close managerial control of work effort

(D) Deskilling

Q.55 As a sociological concept, 'pizza effect' is **NOT** related to which of the following option(s)?

(A) conformity

(B) fast thinking process

(C) ethnocentrism

(D) re-acculturation

Q.56 Which of the following author(s) highlighted the connection between kinship terminology and kinship structure in India?

(A) Irawati Karve

(B) Lewis Henry Morgan

(C) T.N Madan

(D) Leela Dube

Q.57 What is/are the strategy/strategies proposed by B. R Ambedkar for Dalits to overcome caste oppression?

(A) Endogamy

(B) Electoral mobilization

(C) Reform of Hinduism

(D) Civil disobedience

Q.58 Which of the following is /are **NOT** author(s) of the essay, 'Can the Subaltern Speak?'

(A) Dipesh Chakrabarty

(B) Partha Chatterjee

(C) Ranajit Guha

(D) Gayatri Chakravorty Spivak

Q.59 In his critique of modernization theory, Raúl Prebisch posits which of the following option(s) as central to his liberal theory of dependency?

(A) A breakdown of the chain of dependency between core and periphery.

(B) Decoupling from the world systems theory.

(C) Strengthening of domestic markets of production and consumption.

(D) A heterogeneous movement from tradition to modernity.

Q.60 The Mathura Rape Case that took place in 1972 is considered to be a watershed moment for women's rights. From the following options, select which legal change(s) was/were introduced in the aftermath of the mobilizations following this case?

(A) Declaration of the 2-finger test as unconstitutional.

(B) Change in the reading of consent under the law dealing with rape.

(C) Declaration of custodial rape as a criminal offence.

(D) Placing the burden of proof on the accused rather than the victim.

Q.61 Which of the following is / are associated with liberalization of the world economy?

(A) Withdrawal of the state from provision of welfare measures

(B) Planned economy

(C) Capital's search for the cheapest resource

(D) The presence of tariff barriers

Q.62 Reena and Sheena are Hindi-speaking neighbours who grew up together. Reena refers to Sheena's mother as *mausi* (mother's sister). This is an example of which of the following kinship type(s)?

(A) Telescoping

(B) Fictive kinship

(C) Surrogate kinship

(D) Matrilineal kinship

Q.63 A.R Radcliffe-Brown is associated with fieldwork in which of the following region(s)?

(A) Papua New Guinea

(B) The Trobriand Islands

(C) The Andaman Islands

(D) Highland Burma

Q.64 Which of the following option(s) is/are feature(s) of the protests against the farm laws of 2020?

(A) They called for guaranteed procurement in all 23 crops for which the government had declared a Minimum Support Price.

(B) They challenged the growing entry of corporate capital in agriculture.

(C) They brought media attention to India's increasing carbon emissions.

(D) They championed the cause of pesticide victims of Kasargod.

Q.65 Which of the following option(s) is / are a feature of the Marxist method?

(A) Ideological determinism

(B) Historical materialism

(C) Dialectical materialism

(D) Materialist pessimism

GATE 2024

Entrance Exams

- Agricultural Entrance Exams
- Architecture Entrance Exam
- Arts and Humanities Entrance Exams
- Commerce Entrance Examinations
- Common Entrance Examinations
- Computer Application Entrance Exams
- Design Entrance Exams
- Education Entrance Exams
- Engineering Entrance Exams
- Hotel Management Entrance Exams
- Law Entrance Exams
- MBA Entrance Exams
- Media & Journalism Entrance Exams
- Medical Entrance Exams
- Nursing Entrance Exams
- Pharmacy Entrance Exams
- Science Entrance Exams
- Diploma & Polytechnic
- Lateral Entry