GATE General Aptitude

Sample Paper – 8

Duration: 28 Minutes **Maximum Marks: 15**

Instructions

- This paper contains **10** questions, modelled on the General Aptitude section of **GATE** conducted by the IITs and IISc.
- The **10-question** length and the **15-mark** total match the General Aptitude section of the real 65-question paper exactly: **5 questions of 1 mark** (Q1–Q5) and **5 questions of 2 marks** (Q6–Q10).
- Each question carries **negative marking of one-third of its allotted marks**: a wrong 1-mark question costs **0.33** and a wrong 2-mark question costs **0.67**. Unattempted questions carry no penalty.
- Every question here is a **Multiple Choice Question** with exactly one correct option. The real GA section may also include Multiple Select Questions (MSQ) and Numerical Answer Type (NAT) questions, and **those two types carry no negative marking** – never leave a NAT blank.
- Attempt this practice paper in one timed sitting of about **28 minutes**, the share this section earns at the paper's overall pace of 180 minutes for 65 questions.

Verbal Aptitude

Q1. In which one of the following sentences is the modifier placed **correctly**?

[1 mark]

(A) Walking through the plant, the supervisor noticed a cracked weld on the main girder.

(B) Walking through the plant, a cracked weld on the main girder was noticed by the supervisor.

(C) The supervisor noticed a cracked weld on the main girder walking through the plant.

(D) Walking through the plant, the main girder's cracked weld was noticed by the supervisor.

Q2. Read the sentence below.

*The board gave the proposal a **tepid** reception, and the project was quietly shelved.*

The word most nearly **opposite** in meaning to **tepid**, **as used here**, is: [1 mark]

(A) Lukewarm

(B) Enthusiastic

(C) Cautious

(D) Formal

Q3. The four sentences below are in random order. Choose the option that arranges them into a coherent passage.

P. The team compared these printed parts against the machined originals.

Q. A design office decided to test whether 3D printing could replace machining for small brackets.

R. Ten brackets were printed in a single overnight run.

S. The comparison showed that the printed brackets matched on fit but fell short on fatigue life. [1 mark]

(A) R, Q, S, P

(B) P, S, Q, R

(C) Q, R, P, S

(D) S, P, R, Q

Quantitative Aptitude

Q4. A father's present age is three times his son's present age. Twelve years from now, the father's age will be twice the son's age. The present ages of the son and the father, in that order, are: [1 mark]

(A) 12 years and 36 years

(B) 10 years and 30 years

(C) 14 years and 42 years

(D) 16 years and 48 years

Q5. A sum of Rs. 12,000 is invested at 5% per annum, compounded annually. The **compound interest** earned at the end of **two** years is: [1 mark]

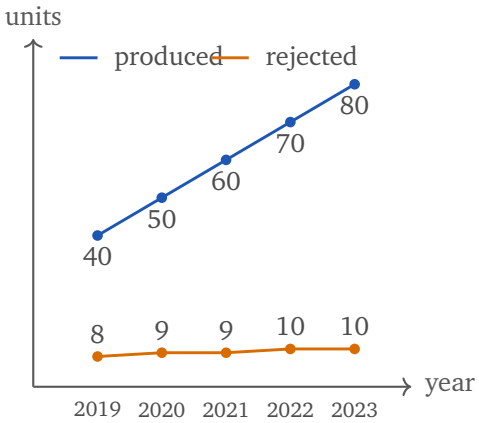
(A) Rs. 1,200

(B) Rs. 13,230

(C) Rs. 600

(D) Rs. 1,230

Q6. The plot below shows, for a components workshop, the number of units **produced** and the number of units **rejected** in each of five years. Which one of the following statements correctly describes the **trend**? [2 marks]



(A) Production rises while rejects fall, so the rejection rate falls in every successive year.

(B) Both production and rejects rise, but rejects rise far more slowly, so the rejection rate falls in every successive year.

(C) Production and rejects rise in the same proportion, so the rejection rate stays constant through the five years.

(D) Rejects rise faster than production, so the rejection rate rises in every successive year.

Analytical Aptitude

Q7. Read the two events below.

I. The city corporation shut the arterial road to all traffic for four days from Tuesday morning.

II. A water main running under the arterial road burst late on Monday night.

Which one of the following best describes the relationship between the two events? [2 marks]

(A) Event I is the cause and event II is its effect.

(B) Both events are effects of a single common cause that is independent of them.

(C) Both events are effects of causes that are independent of each other.

(D) Event II is the cause and event I is its effect.

Q8. Find the **missing term** in the letter series below.

B, D, G, K, _____, V [2 marks]

(A) N

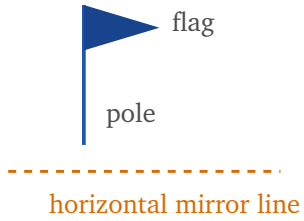
(B) P

(C) O

(D) Q

Spatial Aptitude

Q9. The figure below shows an upright flag: a vertical pole with a triangular flag attached at the **top** of the pole and pointing to the **right**. The dashed line is a **horizontal** mirror line lying below the figure. In the mirror image of this figure formed about that horizontal line, the flag will be: [2 marks]



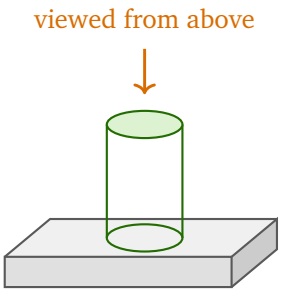
(A) At the top of the pole, pointing to the left.

(B) At the top of the pole, pointing to the right.

(C) At the bottom of the pole, pointing to the right.

(D) At the bottom of the pole, pointing to the left.

Q10. The solid below is a **square slab** with a **right circular cylinder** standing upright at its centre. The arrow shows the direction from which the solid is viewed. The **top view** of this solid is: **[2 marks]**



(A) A square with a smaller circle centred inside it.

(B) A wide rectangle with a narrower rectangle standing on it.

(C) A circle only.

(D) A square only.

Detailed Solutions

Q1.

Solution

Concept – a modifier attaches to the nearest noun it can find: An introductory participial phrase such as "Walking through the plant" must be followed immediately by the noun that is actually doing the walking. If the noun that follows cannot walk, the modifier is left dangling. If the phrase sits next to some other noun in the middle of the sentence, the modifier is misplaced.

Step 1 – identify the modifier: The modifying phrase in every option is *walking through the plant*.

Step 2 – ask who performs the action in the modifier: Only a person can walk through a plant. In this sentence the only person available is *the supervisor*.

Step 3 – state the test: The word that comes right after the introductory phrase and its comma must be *the supervisor*. If it is anything else, the sentence is wrong.

Step 4 – apply the test to option A: Option A reads "Walking through the plant, *the supervisor* noticed ...". The noun right after the comma is *the supervisor*, which is exactly the walker.

Step 5 – confirm: The modifier and its subject are adjacent, so nothing dangles and nothing is misplaced. Option A is the correctly built sentence.

Why the other options are wrong:

- B: is a **dangling modifier**. The noun after the comma is *a cracked weld*, so the sentence literally says the weld was walking through the plant. Turning the clause into the passive voice pushed the supervisor to the end, which is exactly how danglers are created.
- C: is a **misplaced modifier**. The phrase has been shifted to the end, where it sits next to *the main girder*. The sentence now says the girder was walking through the plant.
- D: is a dangling modifier again. The noun after the comma is *the main girder's cracked weld*. A possessive noun cannot rescue the sentence either, because the walker must be the grammatical subject, not a possessive inside it.

Final Answer: Option A $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q1

Q2.

Solution

Concept – a contextual antonym is fixed by the sentence, not by the dictionary's first entry: Read the word in its own sentence, decide what it is doing there, and then reverse that.

Step 1 – find the literal meaning: *Tepid* literally means slightly warm, as in tepid water.

Step 2 – find the meaning it carries here: The sentence is about a board receiving a proposal. Temperature is irrelevant. Here *tepid* carries its figurative sense: unenthusiastic, half-hearted, showing little interest.

Step 3 – use the rest of the sentence as evidence: The second half says the project was *quietly shelved*. A proposal only gets shelved when nobody is keen on it, which confirms that *tepid* means lacking enthusiasm.

Step 4 – state the reverse: The opposite of a half-hearted, unenthusiastic reception is a warm, eager, **enthusiastic** one.

Step 5 – match it to an option: *Enthusiastic* is option B, and it is the only option that expresses keenness.

Why the other options are wrong:

- A, lukewarm: is a **synonym**, not an antonym. It is the trap for anyone who reverses the literal temperature sense and forgets the figurative one.
- C, cautious: points in the *same* direction as tepid, since a cautious reception is also a reserved one. It is a weaker synonym rather than an opposite.
- D, formal: describes the *manner* of the reception, not its warmth. A reception can be formal and enthusiastic at the same time, so it is not an opposite at all.

Final Answer: Enthusiastic $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q2

Q3.

Solution

Concept – lock the opener first, then follow the chain of dependencies: Each sentence in a jumble either introduces something new or refers back to something already introduced. Sentences that refer back cannot come first.

Step 1 – find the opener: **Q** is the only sentence that introduces the actors and

the purpose: a design office wants to test whether printing can replace machining. Every other sentence assumes that test already exists. So Q is first.

Step 2 – find what must come immediately after: Once the test is decided, the parts have to be made. **R** describes the printing of ten brackets. So R follows Q.

Step 3 – place P using its back-reference: **P** says "these printed parts". The phrase *these printed parts* can only point back to the ten brackets in R, so P must come after R.

Step 4 – place S using its back-reference: **S** begins "The comparison showed". The comparison itself is performed in P, so S must come after P.

Step 5 – assemble: Q, then R, then P, then S, giving **QRPS**.

Step 6 – read it back as a check: The office decides to test printing, ten brackets are printed overnight, the team compares them against the machined originals, and the comparison shows they match on fit but fall short on fatigue life. The passage runs from intention to method to result, which is the natural order.

Why the other options are wrong:

- A, RQSP: opens with R, so ten brackets get printed before the reader is told what is being tested or why. It also puts S before P, reporting the comparison's result before the comparison happens.
- B, PSQR: opens with P, but "these printed parts" has nothing to refer back to at the start of a passage.
- D, SPRQ: opens with the conclusion and ends with the intention, which reverses the whole logical flow.

Final Answer: Q, R, P, S $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q3

Q4.

Solution

Concept – in an ages problem, set the variable at the PRESENT and add the same number of years to everybody: Time passes equally for both people, so the future condition gives one clean equation.

Step 1 – name the present ages: Let the son's present age be s years.

Step 2 – write the father's present age: The father is three times as old, so the father's present age $= 3s$ years.

Step 3 – move both ages forward by 12 years: Son's age in 12 years $= s + 12$

Father's age in 12 years $= 3s + 12$

Step 4 – write the future condition as an equation: Father will then be twice the son, so

$3s + 12 = 2(s + 12)$

Step 5 – expand the right-hand side: $3s + 12 = 2s + 24$

Step 6 – collect the s terms: $3s - 2s = 24 - 12$

Step 7 – solve: $s = 12$

Step 8 – find the father's present age: Father $= 3s = 3 \times 12 = 36$ years

Step 9 – verify against both conditions: Now: $36 = 3 \times 12$, so the first condition holds.

In 12 years: son $= 12 + 12 = 24$ and father $= 36 + 12 = 48$.

Check: $48 = 2 \times 24$, so the second condition holds too.

Why the other options are wrong:

- B, 10 and 30: satisfies the "three times" condition but fails the future one. In 12 years the ages are 22 and 42, and $42 \neq 2 \times 22 = 44$.
- C, 14 and 42: also satisfies "three times" only. In 12 years the ages are 26 and 54, and $54 \neq 2 \times 26 = 52$.
- D, 16 and 48: satisfies "three times" only. In 12 years the ages are 28 and 60, and $60 \neq 2 \times 28 = 56$. Options B, C and D are all placed to catch anyone who checks the present condition and stops there.

Final Answer: 12 years and 36 years $\Rightarrow$ A

Answer: (A) Go Back to Q4

Q5.

Solution

Concept – compound interest is charged on a principal that grows every year: Each year's interest is added to the principal, and the next year's interest is charged on that larger figure. So the amount is found first, and the interest is what is left after the original principal is subtracted.

Step 1 – list what is given: Principal $P =$ Rs. 12,000, rate $R = 5\%$ per annum, time $n = 2$ years, compounded annually.

Step 2 – find the first year's interest: Interest $= 12{,}000 \times \dfrac{5}{100} = 600$

Step 3 – find the amount at the end of year 1: Amount $= 12{,}000 + 600 = 12{,}600$

Step 4 – find the second year's interest on the NEW principal: Interest $= 12{,}600 \times \dfrac{5}{100} = 630$

Step 5 – find the amount at the end of year 2: Amount $= 12{,}600 + 630 = 13{,}230$

Step 6 – subtract the original principal to get the compound interest: CI $= 13{,}230 - 12{,}000 = 1{,}230$

Step 7 – confirm with the standard formula: $A = P\left(1 + \dfrac{R}{100}\right)^n$

$A = 12{,}000 \times (1.05)^2$

$(1.05)^2 = 1.1025$

$A = 12{,}000 \times 1.1025 = 13{,}230$

CI $= 13{,}230 - 12{,}000 = 1{,}230$, which matches Step 6.

Why the other options are wrong:

- A, Rs. 1,200: charges 5% on the original Rs. 12,000 in both years, that is $600 + 600$. That is the **simple** interest, and it misses the Rs. 30 earned on the first year's interest, which is the whole point of compounding.
- B, Rs. 13,230: is the **amount**, not the interest. The question asks only for what was earned, so the principal of Rs. 12,000 still has to be subtracted.
- C, Rs. 600: is only the **first year's** interest. The question asks for the total earned over two years.

Final Answer: Rs. 1,230 $\Rightarrow$ D

Answer: (D) Go Back to Q5

Q6.

Solution

Concept – when a plot shows two quantities over time, a "trend" claim has two parts: The direction each line moves, and how the two directions compare. A ratio such as a rejection rate can fall even while both quantities rise, provided the numerator rises more slowly than the denominator.

Step 1 – read the produced values off the plot: 2019: 40, 2020: 50, 2021: 60, 2022: 70, 2023: 80

Step 2 – read the rejected values off the plot: 2019: 8, 2020: 9, 2021: 9, 2022: 10, 2023: 10

Step 3 – state each line's direction: Production rises by a fixed 10 units every year, so it is strictly rising.

Rejects go 8, 9, 9, 10, 10. They never fall, and they rise from 8 to 10 across the five years, so they are rising as well, but only slightly.

Step 4 – compare the sizes of the two rises: Production rises from 40 to 80, which is a rise of 40 units, or a doubling.

Rejects rise from 8 to 10, which is a rise of only 2 units, or one quarter.

So rejects rise far more slowly than production.

Step 5 – compute the rejection rate year by year: 2019: $\frac{8}{40} \times 100 = 20\%$

2020: $\frac{9}{50} \times 100 = 18\%$

2021: $\frac{9}{60} \times 100 = 15\%$

2022: $\frac{10}{70} \times 100 = 14.29\%$

2023: $\frac{10}{80} \times 100 = 12.5\%$

Step 6 – read the rate sequence: 20, 18, 15, 14.29, 12.5. Each value is smaller than the one before it, so the rejection rate falls in every successive year.

Step 7 – match this to a statement: Both quantities rise, rejects rise far more slowly, and the rate therefore falls every year. That is exactly option B.

Why the other options are wrong:

- A: gets the conclusion about the rate right but the reason wrong. It claims rejects *fall*, whereas the plot shows them going 8, 9, 9, 10, 10, which never decreases. The misconception is assuming that a falling ratio requires a falling numerator.
- C: claims the two rise in the same proportion. Production doubles while rejects rise by only a quarter, so the proportions are nowhere near equal and the rate is not constant.
- D: reverses the comparison entirely. It would require rejects to grow faster than production, but the computed rates fall from 20% to 12.5%, which rules it out.

Final Answer: Both rise, rejects rise far more slowly, and the rejection rate falls every year $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q6

Q7.

Solution

Concept – cause and effect is settled by two tests, timing and dependence: The cause must come earlier in time than the effect, and the effect must be something the cause can plausibly produce on its own. Apply the timing test first, because it is decisive and takes a second.

Step 1 – extract the time stamp of each event: Event I: the road was shut for four days *from Tuesday morning*.

Event II: the water main burst *late on Monday night*.

Step 2 – order the two events in time: Monday night comes before Tuesday morning. So event II happened first and event I happened afterwards.

Step 3 – rule out one direction immediately: An event cannot cause something that has already happened. Since event I is later, it cannot be the cause of event II.

Step 4 – test the surviving direction for plausibility: A water main bursting under a road forces the corporation to dig up that road to reach the pipe and repair it. Traffic has to be kept off the excavation. So a burst main is a sufficient reason to shut the road, and four days is a reasonable repair window.

Step 5 – check for a hidden common cause: Nothing else in the two statements suggests a third event behind both. The burst is a self-contained physical failure, and the closure is a direct administrative response to it. There is no need to invent a common cause.

Step 6 – conclude: Event II is the cause and event I is its effect.

Why the other options are wrong:

- A: reverses the direction. It requires the Tuesday closure to have caused the Monday burst, which fails the timing test outright.
- B: needs a third independent event that produced both the burst and the closure. No such event is stated, and the closure is already fully explained by the burst.
- C: claims the two are unconnected. This ignores the obvious dependence, that the road was dug up precisely to reach the broken main under it.

Final Answer: Event II is the cause and event I is its effect $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q7

Q8.

Solution

Concept – convert letters to their alphabet positions and look at the GAPS: A letter series almost never has a rule visible in the letters themselves. Number the letters first, take the differences, and if the differences are not constant, take the differences of the differences.

Step 1 – write down the position of each given letter: $\mathrm{B} = 2, \quad \mathrm{D} = 4, \quad \mathrm{G} = 7, \quad \mathrm{K} = 11, \quad ? = x, \quad \mathrm{V} = 22$

Step 2 – take the gaps between consecutive known terms: $4 - 2 = 2$

$7 - 4 = 3$

$11 - 7 = 4$

Step 3 – read the pattern in the gaps: The gaps run 2, 3, 4. They increase by 1 each time, so the next gap must be 5 and the one after that must be 6.

Step 4 – apply the gap of 5 to find the missing term: $x = 11 + 5 = 16$

Step 5 – convert position 16 back to a letter: Counting $\mathrm{A} = 1$, the 16th letter is **P**.

Step 6 – verify using the last term: The next gap should be 6, so the term after P should be at $16 + 6 = 22$.

Position 22 is V, which is exactly the last term given. The rule holds all the way through, so P is confirmed.

Why the other options are wrong:

- A, N: is position 14, which comes from adding a gap of 3 instead of 5. It also breaks the check in Step 6, since $22 - 14 = 8$, and 8 does not continue the run 2, 3, 4.
- C, O: is position 15, that is a gap of 4. This is the error of assuming the gap stays constant at its last value instead of increasing. The final gap would then be 7, again breaking the pattern.
- D, Q: is position 17, that is a gap of 6. It jumps one step ahead in the gap sequence and leaves a final gap of only 5, so the gaps would go 2, 3, 4, 6, 5 and stop increasing.

Final Answer: $\mathrm{P} \Rightarrow \boxed{\mathrm{B}}$

Answer: (B) Go Back to Q8

Q9.

Solution

Concept – a mirror flips the figure across the mirror line and leaves the perpendicular direction alone: The single most useful fact is this. A reflection reverses only the direction that is *perpendicular* to the mirror line. Everything measured *along* the mirror line stays exactly as it was.

Step 1 – identify the mirror line: The dashed line is **horizontal**, and it lies below the figure.

Step 2 – decide which direction gets reversed: The direction perpendicular to a horizontal line is the **vertical** direction. So up and down swap.

Step 3 – decide which direction is untouched: The direction along a horizontal line is the **horizontal** direction. So left and right do **not** swap.

Step 4 – apply the vertical flip to the flag's position on the pole: The flag starts at the **top** of the pole. Up and down swap, so in the image the flag sits at the **bottom** of the pole.

Step 5 – apply the untouched horizontal direction to the flag's pointing: The flag points to the **right**. Left and right are unaffected by a horizontal mirror line, so in the image the flag still points to the **right**.

Step 6 – combine the two results: The image shows the flag at the bottom of the pole, still pointing right.

Step 7 – check with a physical picture: Imagine the flag standing at the edge of still water, with the waterline as the dashed line. The reflection in the water hangs upside down, so the flag appears low down near the pole's reflected tip, but it does not swim across to the other side of the pole. It still points the same way, right.

Why the other options are wrong:

- A, top of the pole pointing left: is the image in a **vertical** mirror line. It reverses left and right and leaves top and bottom alone, which is the exact opposite of what a horizontal mirror does. This is the main trap.
- B, top of the pole pointing right: is the original figure unchanged. A reflection about a line that the figure does not lie on must move it.
- D, bottom of the pole pointing left: reverses **both** directions, which is a **180 degree rotation**, not a reflection. Reversing two perpendicular directions at once undoes the mirror's handedness flip.

Final Answer: At the bottom of the pole, pointing to the right $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q9

Q10.

Solution

Concept – a view is the outline you get by projecting the solid onto a flat plane along the viewing direction: For a top view, look straight down. Every part of the solid, whatever its height, is flattened onto the same horizontal plane, and the outlines of all the parts are drawn together on that one plane.

Step 1 – break the solid into its two parts: Part 1 is the square slab at the bottom. Part 2 is the right circular cylinder standing upright at the slab's centre.

Step 2 – project the slab looking straight down: The slab's top face is a square. Looking down at a square face, its outline is a **square**.

Step 3 – project the cylinder looking straight down: A right circular cylinder standing upright has a circular top face. Looking straight down its axis, its outline is a **circle**. The cylinder's height plays no part in a top view.

Step 4 – compare the two footprints: The cylinder stands on the slab and is narrower than the slab, so the circle is smaller than the square.

Step 5 – use the fact that the cylinder is at the centre: The cylinder is placed at the centre of the slab, so the circle sits at the centre of the square rather than off to one side.

Step 6 – combine into a single view: Both outlines are drawn on the same plane, giving a square with a smaller circle centred inside it.

Step 7 – note what a top view never shows: Heights. Nothing in the answer should mention how tall the cylinder is or how thick the slab is, because the eye is looking straight along those directions.

Why the other options are wrong:

- B, a wide rectangle with a narrower rectangle standing on it: is the **front view**, not the top view. Seen from the front, the slab flattens to a wide rectangle and the cylinder flattens to a narrower upright rectangle. This is the classic trap of drawing the wrong view.
- C, a circle only: shows the cylinder and forgets the slab. The slab extends well beyond the cylinder, so it is fully visible from above and must appear.
- D, a square only: shows the slab and forgets the cylinder. The cylinder sits on top of the slab and is the first thing the eye meets from above, so it cannot be left out.

Final Answer: A square with a smaller circle centred inside it $\Rightarrow$ A

Answer: (A) Go Back to Q10

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	A	2	B	3	C	4	A	5	D
6	B	7	D	8	B	9	C	10	A