

NITIE

January 19, 2003

We are pleased to present a detailed analysis of the NITIE that was held on January 19, 2003. The questions has been recalled with the help of PT faculty and PT students from across the nation.

A bird's eye view :

- Duration : 150 minutes; Number of Questions : 300;
- Total 5 sections:
 - ◆ Section 1: 60 Q (General Awareness)
 - ◆ Section 2: 60 Q (English Usage)
 - ◆ Section 3: 75 Q (Logical Reasoning)
 - ◆ Section 4: 75 Q (Quantitative Ability)
 - ◆ Section 5: 30 Q (Engineering and Technology)
- The marking scheme:
The paper indicated the existence of a negative marking scheme but did not indicate the extent of the same.



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General Awareness

Questions 1 to 60 : For the following questions choose the correct options

The section included simple GK questions like :

- § Who is the new chairman of Nasscom? (Pheroze Vandrevalla)
- § Who is the only Indian to figure in the Forbes top 40 billionaire lists? (Azim Premji)
- § Where was the recent 7 trillion cubic feet of natural gas discovered (K-G Basin)
- § Which company does not manufacture CD/DVDs?
- § Which is more important in assessing the cost of living?
- § Inflation is marked by ____.
- § Indra Nooyi has been made the President of which company?
- § Acid rain consists of ____.
- § Who invented the cassette used in the tape recorder?
- § Sony Corporation is going to merge with ____.
- § Which drink was introduced after the sudden exit of Coca Cola in the 1970's?
- § Which company owns the "Allen Solly" brand?
- § Who made the first engine to run on petrol?
- § Which American cigarette company was ordered to pay punitive damages of \$5 billion recently?
- § Where is the UNESCO headquartered?
- § What business organization is liable to double taxation?
- § Where was euthanasia first legalised?
- § What is the name of the first Indian electric car?
- § What is the name of the mobile services offered by BSNL?
- § Where was the first technopark established in India?
- § Who won the 2002 Nobel Peace Prize?
- § What do you mean by unlimited liability?
- § The form of business where only a single person holds the entire equity and runs/manages it is called :

Besides a few questions based on the fundamentals of economics and certain other subjects, most of the questions asked were based on the recent happenings and therefore should have been easy for the regular reader. A good score would be 25+.

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English Language

Directions for Q.61 to 120 : For the following questions choose the correct option .

The section included three RCs of five questions each, of a maximum length of about a page and were indeed, very simple. Besides, there were direct questions on vocabulary pertaining to antonyms (4 Nos.) and synonyms (4 Nos.). Besides, there were question on filling in the blanks, critical reasoning, cloze test (10 questions), No. of errors in a given sentence and paragraph formation.

This section was rather easy and 40+ could be a good score.



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Reasoning

Directions for Q. 121 to 195 : For the following questions, choose the correct option.

This section had several direct reasoning based questions – inference making, etc. Besides these, there were many data arrangement sets, five of which were from PT’s material. Besides, there were a few other questions based on statements that most support, most negate etc. (critical reasoning type) and a few others were based on cause-effect relationship and inference-based questions.

Questions 121 & 122 : Read the following information carefully and answer the questions that follow :

Given below is a series of events which are inter-related.

A, B, C or W may cause D.

B, C or W may cause E.

W or X may cause F.

D or E may cause G or H only if D and E are caused by B or C; D or E may cause I only if D and E are caused by C.

Only E and F together may cause M or N.

F may cause H only if it is caused by W or X.

121. Which can result in the smallest number of subsequent events, counting both those that follow immediately and those that follow after another event ?

- (1) A
- (2) B
- (3) C
- (4) W

122. How many different events or combinations of events may cause H ?

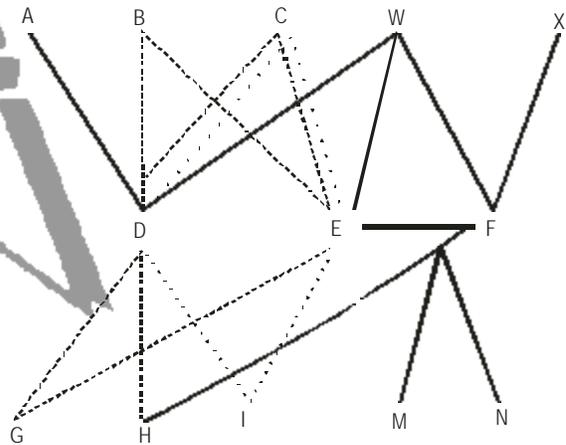
- (1) 5
- (2) 6
- (3) 7
- (4) 8

Solutions for questions 121 to 122

A diagram showing which events may lead to which will help you here. We have used broken and dotted lines with B, C and the events which follow from them in order to distinguish which combinations lead to which results. Your diagram need not be this elaborate (or neat); you are the only person who must be able to read it.

Sol: A results in D only; but D may cause another events only if it is caused by B or C, so no subsequent event follows after the AD sequence. B, C, and W all have more than one immediate result; X has only one, F, but F caused by X may cause H. **Ans.(1)**

Sol: ADH, BDH, CDH, WDH, WFH and XFH are the combinations that cause H. Notice that H may not result from any of the immediately preceding events unless these are resulted from an earlier event. **Ans.(2)**



Questions 123 & 124 : Read the following information carefully and answer the questions that follow :

A sales representative plans to visit each of six companies – A, B, C, D, E and F – exactly once during the course of a day. She is setting up her schedule for the day according to the following conditions :

- She must visit B before D.
- She must visit A before B and E.
- The third company she visits must be C.

123. Which of the following must be true of the sales representative's schedule ?

- (1) She visits A before D.
- (2) She visits B before E.
- (3) She visits C before A.
- (4) She visits C before F.

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124. Which of the following could be the order in which the sales representative visits the six companies ?

- (1) C, E, A, B, D, F
- (2) C, F, A, E, D, B
- (3) A, F, C, B, E, D
- (4) F, A, C, B, E, D

Sol: She visits A before B and B before D. **Ans. (1)**

Sol: Visiting C third and following order ABD and AE, order (C) is correct. **Ans. (3)**

Questions 125 - 128 : Read the following information carefully and answer the questions that follow :

The "Hotel Dron" has two wings, the East Wing and the West Wing. Some East Wing rooms, but not all have an ocean view. All West Wing rooms have a harbor view. The charges for all rooms are same, except :

There is an extra charge for all harbor view rooms on or above the third floor.

There is an extra charge for all ocean view rooms, except those without balcony.

Some harbor view rooms on the first two floors and some East Wing rooms without ocean view have kitchen facilities, for which there is an extra charge.

Only the ocean view and harbor view rooms have balconies.

125. A guest avoid an extra charge by requesting :

- (1) a West Wing room on one of the first two floors
- (2) a West Wing room on the fourth floor without balcony
- (3) an East Wing room without an ocean view
- (4) an East Wing room without balcony

126. Which of the following must be true if all the conditions are as stated ?

- (1) All rooms above the third floor involve an extra charge.
- (2) No room without an ocean or harbor view or kitchen facilities involves an extra charge.
- (3) There is no extra charge for any East Wing room without an ocean view.
- (4) There is no extra charge for any room without kitchen facilities.

127. Which of the following must be false if all conditions are applied ?

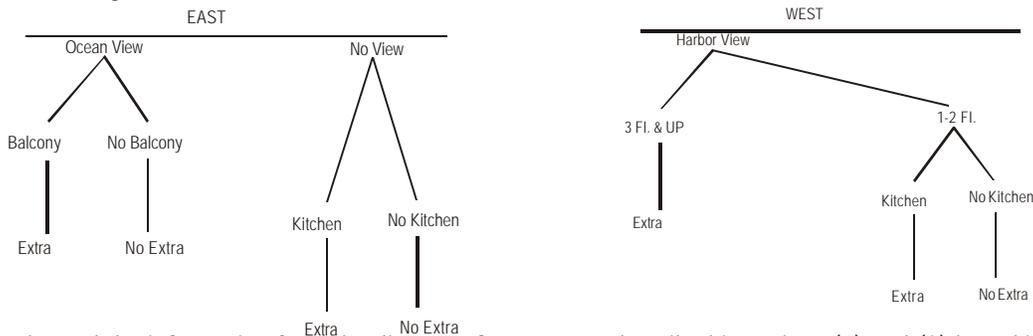
- (1) Some ocean view rooms do not involve an extra charge.
- (2) All rooms with kitchen facilities involve an extra charge.
- (3) Some West Wing rooms above the second floor do not involve an extra charge.
- (4) Some harbor view rooms do not involve an extra charge.

128. Which of the following cannot be determined on the basis of the information given ?

- I. Whether there are any rooms without a balcony for which an extra charge is imposed.
 - II. Whether any room without a kitchen or a view involves an extra charge.
 - III. Whether two extra charges are imposed for any room.
- (1) I only
 - (2) II only
 - (3) I and III only
 - (4) II and III only

Solutions for questions 125 to 128

The information becomes a little easier to keep straight with a "tree" diagram showing the various possibilities, like the one given here.



125. Simply read the information from the diagram. Some rooms described in options (1) and (3) have kitchen facilities; the rooms described in option (2) all involve an extra charge. **Ans. (4)**

126. The only extra charges are for ocean view with balcony, harbor view, third floor and up and rooms with kitchen facilities, no matter where. But some ocean view rooms without balcony and some no-view, no-kitchen East Wing rooms may be above the third floor (1). Options (3) and (4) are all false. **Ans. (2)**

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127. This directly contradicts the first extra-charge condition. The other choices are all definitely true. **Ans.(3)**
 128. We don't know whether any West Wing rooms above the second floor or with kitchen facilities have balconies (I). But we do know that East Wing rooms without view or kitchen have no extra charge attached (II) and that all kitchen facilities are in rooms not otherwise subject to an extra charge (III). **Ans.(1)**

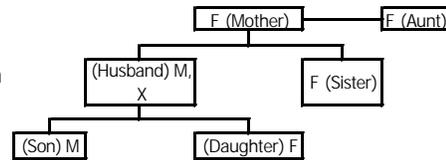
Questions 129 - 132 : Read the following information carefully and answer the questions that follow :

- Six people – P, Q, R, S, T and U – are X's husband, sister, son, daughter, mother and aunt, although not necessarily in that order. They satisfy the following conditions :
- R and S are either both male or both female.
 - Either P or Q, or both are male.
 - Either T or U, or both are female.

129. Any of the following could be X's son except :
 (1) P (2) Q
 (3) S (4) T
130. Which of the following statements must be false ?
 (1) P is S's grandson. (2) S is P's niece.
 (3) P is Q's nephew. (4) U is T's son.
131. If Q is U's daughter, which of the following statements could be true ?
 (1) P is X's sister (2) U is R's aunt
 (3) T is S's nephew (4) Q is S's niece
132. If P is T's sister, U could be any of the following except :
 (1) X's sister (2) X's daughter
 (3) X's aunt (4) X's husband

Solutions for questions 129 to 132

Two (husband and son) of X's six relatives are male and four are female. Since R is of the same sex as S so both must be female, otherwise neither P nor Q could be male. The family relationship can be drawn around X like :
 Here F stands for female and M stands for male.



129. Since R and S must both be female, so, S cannot be X's son. However, P, Q, T and U each could be X's son because any of them might be male. **Ans.(3)**
130. The only son among the six relatives is X's son. If U were T's son, then U would also be X's son. Accordingly, T would be X's husband. However, T and U cannot both be male. Thus statement (4) is false. **Ans.(4)**
131. If Q is U's daughter, then Q and U must either be X's daughter and husband respectively, or X's sister and mother respectively. If P is X's sister, P and Q would both be female, which is impossible so option (1) must be false. Since none of the six relatives could be U's niece, so option (2) must be false. T and S would have to be X's son and sister respectively. Accordingly, U and Q would have to be X's husband and daughter but T and U cannot both be male. So, option (3) must be false. Option (4) could be true because U would be X's mother, S would be U's sister and Q would be X's sister. **Ans.(4)**
132. If P is T's sister, then P and T must either be X's daughter and son respectively or X's mother and aunt (in either order). But P, T and U cannot all three be female, so U cannot be X's daughter. **Ans.(2)**

Besides these, There were a few other sets on the following themes:
 Weather affecting the operation of six rail routes – A, B, C, 1, 2, 3. Four switches to call four waiters – a different combination to call different waiters.

The section was on the simpler side and one could expect a score of 40+ to comfortably get a call.

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Quantitative Aptitude

Directions for Q. 196 to 270 : For the following questions, choose the correct option.

This section was arguably, the toughest of all sections in the paper. It had 75 questions, majorities of which were based on higher or engineering maths topics like Eigen Vectors, Gamma functions, Matrices and Determinants, Quadratic & higher order equations, Limits & Continuities, Complex Numbers, Convergence & Divergence of Series, Definite Integrals, Fourier & Laplace transforms and Partial Differential Equations.

There were hardly 5-6 questions on elementary mathematics.

A good score, though on the lower side, would be 20+



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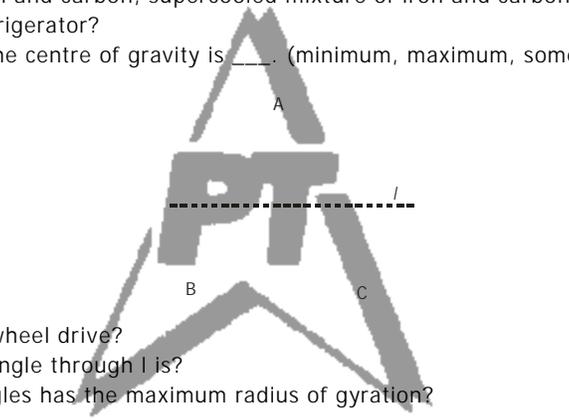
Engineering and Technology

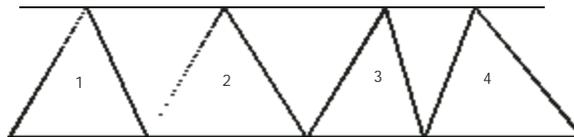
Directions for Q. 271 to 300 : For the following questions, choose the correct option.

This section had 30 questions that were sourced from almost all the engineering branches. The questions were relatively simple which was in stark contrast with the pattern last year.

Some of the questions were:

- § In a V-belt assembly, what are the points of contact?
- § Zeroth Law of Thermodynamics pertains to _____. (Reversibility and irreversibility of processes)
- § What is the nature of emission in Vacuum tubes?
- § Two resistances of zero ohm and 150 ohm are connected in parallel. What is the net resistance?
- § What are the features of Anti-friction bearing?
- § A cubical block of 2m edge and weighing 100 kg. rests on a floor. The coefficient of friction between the material of the cube and the floor is 0.4. Which shall involve least effort? (dragging it along, pushing it, pulling it, rolling it over)
- § Carnot cycle occurs at constant ____ (temperature, pressure, enthalpy)
- § What will happen to a DC Motor when it is supplied with AC?
- § Why don't we require transformers for DC?
- § Why are laminated soft iron cores used in transformers?
- § A stud consists of _____.
- § Water has the highest density at _____.
- § Steel is _____. (mixture of Iron and carbon, supercooled mixture of iron and carbon, alloy of iron and carbon)
- § Which motor is used in a refrigerator?
- § Moment of Inertia through the centre of gravity is _____. (minimum, maximum, somewhere in between)

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- § What do you mean by four wheel drive?
 - § Moment of inertia of the triangle through I is?
 - § Which of the following triangles has the maximum radius of gyration?



- § A cylinder is half full of water. On of its end is tied to a string and whirled in a horizontal circle over the head. Where will the bubbles in the bottle be? (at one end, since the water would experience centripetal force)
- § What is the number of spark plugs in a compression engine? (a compression engine is essentially a diesel engine – hence zero spark plugs)
- § If in a system, on giving a stimulus, the system remains unresponsive for a long time. What is this state called?
- § A known mass is rolled down a smooth surface and a similar mass is dropped from the same vertical height. What is the difference in the work done? (Zero, since both had equal potential energies at the start of the fall/slide)
- § If a person can throw a ball vertically to a maximum height of h mts., then the maximum range in a horizontal throw is? (2h)
- § What is meant by MPFI – Multi Point Fuel Injection? (fuel is injected at various times during the cycle)
- § If maximum height is h, then maximum range is?

Quite a few of the questions were based on the mechanics and class 12th physics. Certain other topics, predominantly from the first year subjects (General Mechanical Engg., General Electrical Engg., etc.) were also asked. A good score would be around 10+.

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Overall analysis

Overall we expect that a net score of around 135+ should be good score for a student to get a call.



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