

SPJET SAMPLE PAPER 8

Please fill in the following information with a ball-point pen:

STUDENT NAME

S P JAIN'S UNDERGRADUATE ENTRANCE TEST

Please read instructions in the answer sheet and question booklet before answering

1. Please check the number of questions before you start answering (Total no. of Sections : 6)
2. All rough work to be done only on the blank sheet provided at the back of the question booklet. Please do NOT write on the question paper
3. Laptops, calculators, slide rules, log tables, watch calculators, papers, cellular phones etc are not allowed inside the examination hall
4. You will not be allowed to leave the examination hall during the examination
5. Any candidate found violating the instructions and receiving/giving any form of help will be disqualified

The decision of S P Jain will be final and binding on the applicant in case of any dispute.

Signature of Invigilator

APPROPRIATION OF MARKS

Section	No. of Questions	Marks per question	Total Marks per Section
Logic	5	2	10
Diagrammatic Reasoning	4	4	16
Numeracy	6	3	18
IQ	10	2	20
Reading Comprehension	5	4	20
General Awareness	8	2	16
Total	38		100

LOGIC (50 x 2 marks = 10 marks.)

1. Each problem consists of three statements. Based on the first two statements, the third statement may be true, false, or uncertain.

1. Tanya is older than Eric.
2. Cliff is older than Tanya.
3. Eric is older than Cliff.

If the first two statements are true, the third statement is

- (A) True
- (B) False
- (C) Neither True or False
- (D) Both True & False

2. Fact 1: Jessica has four children
Fact 2: Two of the children have blue eyes and two of the children have brown eyes.
Fact 3: Half of the children are girls.

If the first three statements are facts, which of the following statements must also be a fact?

- I: At least one girl has blue eyes.
- II: Two of the children are boys.
- III: The boys have brown eyes

- (A) I only
- (B) II only
- (C) II and III only
- (D) I and III only

3. A bat and ball cost \$1.10. The bat costs one dollar more than the ball. How much does the ball cost?

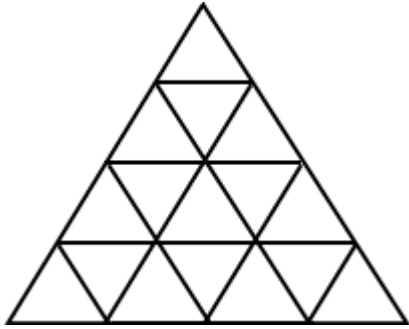
- (A) 10 cents
- (B) 5 cents
- (C) 11 cents
- (D) 9 cents

4. Only fish oil contains Omega 3.
Only foods that contain Omega 3 help with brain development.

Which conclusion can be derived from the combination of these two statements?

- (A) All fish oils help with brain development.
- (B) Only what contains Omega 3 is fish oil.
- (C) All that helps with brain development is fish oil.
- (D) None of the above.

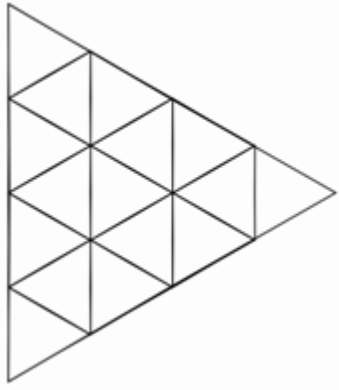
5. How many triangles are located in the figure below?



- (A) 27
- (B) 17
- (C) 30
- (D) 16

DIAGRAMMATIC REASONING 40 x 4 marks = 16 marks.)

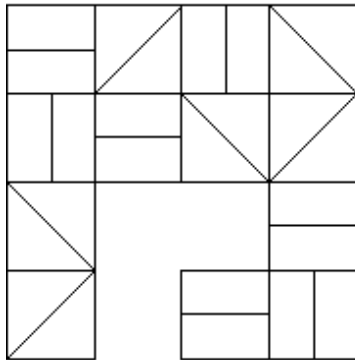
1. How many triangles are there in the figure?



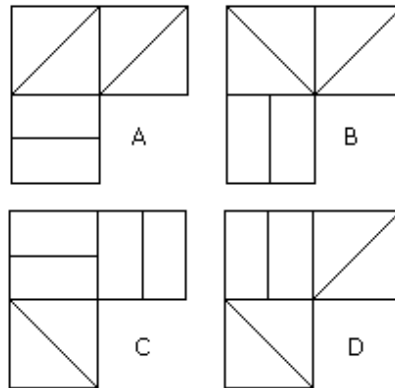
- (A) 24
- (B) 27
- (C) 30
- (D) None of the other options

2. Which one of the answer figures best fits the missing space in the question figure?

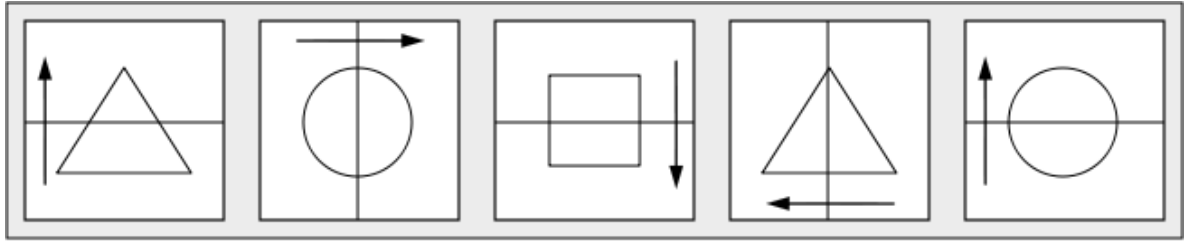
Question Figure



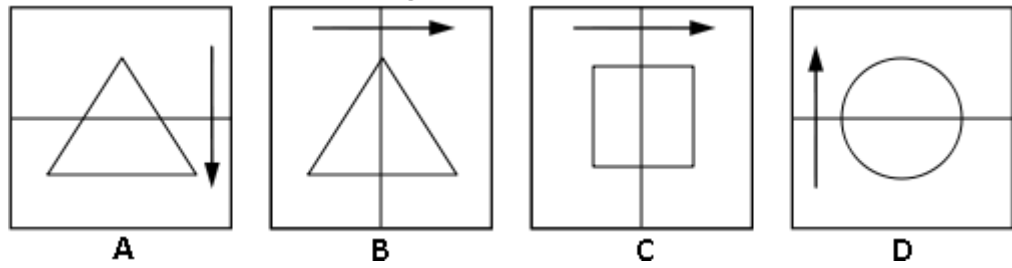
Answer Figures



3.

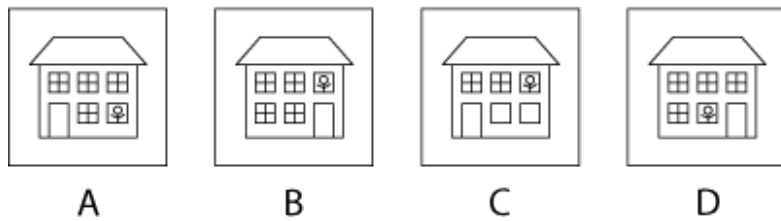


What comes next in the sequence?



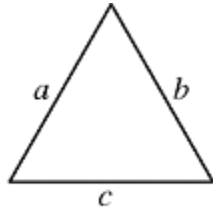
4. Which comes next in the series?





NUMERACY 60 x 3 = 18 marks.)

1.



Note: Figure not drawn to scale.

If two sides of a triangle above have lengths 5 and 6, the perimeter of the triangle could be which of the following?

- (A) 11
- (B) 15
- (C) 24
- (D) 30

2. Milk costs **X** cents per half-gallon and **Y** cents per gallon. If a gallon of milk costs **Z** cents less than 2 half-gallons, which of the following equations must be true?

- (A) $x - 2y + z = 0$
- (B) $x - y - z = 0$
- (C) $2x - y - z = 0$
- (D) $x + 2y - z = 0$

3. For some real number t , the first three terms of an arithmetic sequence are $2t$, $5t-1$, and $6t+2$. What is the numerical value of the fourth term?

- (A) 10
- (B) 4
- (C) 16
- (D) 19

4. Tickets for a show cost \$3 or \$5. If 50 tickets were sold for a total of \$230, how many tickets were sold for \$3?
- (A) 10
(B) 20
(C) 30
(D) 40
5. A number n is increased by 8. If the cube root of that result equals, - 0.5 what is the value of n ?
- (A) -15.625
(B) - 8.794
(C) - 8.125
(D) -7.875
6. Twenty students have each sampled one or more of three kinds of candy bars that a school store sells. If 3 students have sampled all three kinds, and 5 have sampled exactly two kinds, how many of these students have sampled only one kind?
- (A) 8
(B) 12
(C) 17
(D) 18

IO (100 x 2 = 20 marks.)

1. Which number should come next in the series?

1, 3, 6, 10, 15,

- (A) 8
- (B) 21
- (C) 24
- (D) 27

2. Not wanting to come across as -----, the award-winning biologist ----- her many impressive accomplishments as she addressed the team of scientists.

- (A) egotistical..... downplayed
- (B) experienced..... explored
- (C) celebrated..... highlighted
- (D) arrogant..... evoked

3. Which one of the five choices makes the best comparison?

PEACH is to HCAEP as 46251 is to:

- (A) 15264
- (B) 12654
- (C) 26451
- (D) 51462

4. Choose the word most similar to “Trustworthy”

- (A) Tenacity
- (B) Relevant
- (C) Insolent
- (D) Reliable

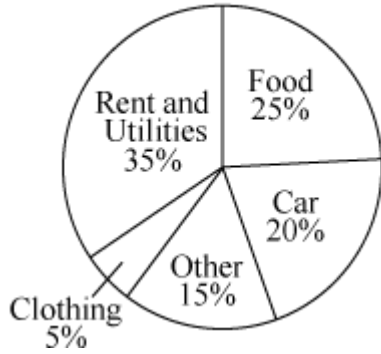
5. Which number does not belong to this group?

4	32	144
17	28	122
18	64	188
322	202	14

- (A) 32
- (B) 322
- (C) 17
- (D) 14

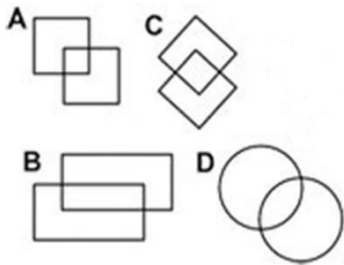
9. The graph below shows how David's monthly expenses are divided. If David spends \$450 per month on food, how much does he spend per month on his car?

DAVID'S MONTHLY EXPENSES



- (A) \$200
- (B) \$320
- (C) \$360
- (D) \$400

10. Which of the following diagrams is the odd one out?



- (A), (B), (C), (D),

READING COMPREHENSION (50 x 4 = 20 marks.)

There is increasing evidence that the impacts of meteorites have had important effects on Earth, particularly in the field of biological evolution. Such impacts continue to **pose** a natural hazard to life on Earth. Twice in the twentieth century, large meteorite objects are known to have collided with Earth.

If an impact is large enough, it can disturb the environment of the entire Earth and cause an ecological catastrophe. The best documented such impact took place 65 million years ago at the end of the Cretaceous period of geological history. This break in Earth's history is marked by a mass extinction, when as many as half the species on the planet became extinct. While there are a dozen or more mass extinctions in the geological record, the Cretaceous mass extinction has always intrigued paleontologists because it marks the end of the age of the dinosaurs. For tens of millions of years, those great creatures had flourished. Then, suddenly, they disappeared.

The body that impacted Earth at the end of the Cretaceous period was a meteorite with a mass of more than a trillion tons, and a diameter of at least 10 kilometers. Scientists first identified this impact in 1980 from the worldwide layer of sediment deposited from the dust cloud that enveloped the planet after the impact. This sediment layer is enriched in the rare metal iridium and other elements that are relatively abundant in a meteorite but very rare in the crust of Earth. Even diluted by the terrestrial material excavated from the crater, this component of meteorites is easily identified. By 1990 geologists had located the impact site itself in the Yucatán region of Mexico. The crater, now deeply buried in sediment, was originally about 200 kilometers in diameter.

This impact released an enormous amount of energy, **excavating** a crater about twice as large as the lunar crater Tycho. The explosion lifted about 100 trillion tons of dust into the atmosphere, as can be determined by measuring the thickness of the sediment layer formed when this dust settled to the surface. Such a quantity of material would have blocked the sunlight completely from reaching the surface, plunging Earth into a period of cold and darkness that lasted at least several months. The explosion is also calculated to have produced vast quantities of nitric acid and melted rock that sprayed out over much of Earth, starting widespread fires that must have consumed most terrestrial forests and grassland. Presumably, those environmental disasters could have been responsible for the mass extinction, including the death of the dinosaurs.

Several other mass extinctions in the geological record have been tentatively identified with large impacts, but none is so dramatic as the Cretaceous event. But even without such specific documentation, it is clear that impacts of this size do occur and that their results can be catastrophic. What is a catastrophe for one group of living things, however, may create opportunities for another group. Following each mass extinction, there is a sudden evolutionary burst as new species develop to fill the ecological niches opened by the event.

Impacts by meteorites represent one mechanism that could cause global catastrophes and seriously influence the evolution of life all over the planet. According to some estimates, the majority of all extinctions of species may be due to such impacts. Such a perspective fundamentally changes our view of biological evolution. The standard criterion for the survival of a species is its success in competing with other species and adapting to slowly changing environments. Yet an equally important criterion is the ability of a species to survive random global ecological catastrophes due to impacts.

Earth is a target in a cosmic shooting gallery, subject to random violent events that were unsuspected a few decades ago. In 1991 the United States Congress asked NASA to investigate the hazard posed today by large impacts on Earth. The group conducting the study concluded from a detailed analysis that impacts from meteorites can indeed be hazardous. Although there is always some risk that a large impact could occur, careful study shows that this risk is quite small.

1. The word “pose” on line 2 is closest in meaning to
 - (A) Claim
 - (B) Model
 - (C) Assume
 - (D) Present

2. In paragraph 2, why does the author include the information that dinosaurs had flourished for tens of millions of years and then suddenly disappeared?
 - (A) To support the claim that the mass extinction at the end of the Cretaceous is the best-documented of the dozen or so mass extinctions in the geological record
 - (B) To explain why as many as half of the species on Earth at the time are believed to have become extinct at the end of the Cretaceous
 - (C) To explain why palaeontologists have always been intrigued by the mass extinction at the end of the Cretaceous
 - (D) To provide evidence that an impact can be large enough to disturb the environment of the entire planet and cause an ecological disaster

3. Paragraph 6 supports which of the following statements about the factors that are essential for the survival of a species?
 - (A) The most important factor for the survival of a species is its ability to compete and adapt to gradual changes in its environment
 - (B) The ability of a species to compete and adapt to a gradually changing environment is not the only ability that is essential for survival
 - (C) Since most extinction of species are due to major meteorite impacts, the ability to survive such impacts is the most important factor for the survival of a species
 - (D) The factors that are most important for the survival of a species vary significantly from one species to another

4. According to paragraph 3, how did scientists determine that a large meteorite had impacted Earth?
- (A) They discovered a large crater in the Yucatán region of Mexico
 - (B) They found a unique layer of sediment worldwide
 - (C) They were alerted by archaeologists who had been excavating in the Yucatán region
 - (D) They located a meteorite with a mass of over a trillion tons
5. The word “excavating” on line 25 is closest in meaning to
- (A) Digging out
 - (B) Extending
 - (C) Destroying
 - (D) Covering up

GENERAL AWARENESS(80 x 2 = 16 marks.)

1. Which is the longest river in the world?
 - (A) Nile
 - (B) Mississippi river
 - (C) Yangtze
 - (D) Yellow river

2. The most abundant gas in the earth's atmosphere is
 - (A) Nitrogen
 - (B) Oxygen
 - (C) Carbon dioxide
 - (D) Hydrogen

3. Goitre or abnormal enlargement of the thyroid gland is caused by the deficiency of
 - (A) Iron
 - (B) Iodine
 - (C) Potassium
 - (D) Magnesium

4. To which game is Davis Cup related?
 - (A) Lawn tennis
 - (B) Hockey
 - (C) Handball
 - (D) Cricket

5. Carbon dioxide is called greenhouse gas because
 - (A) it is used in photosynthesis
 - (B) it absorbs infrared radiation
 - (C) it emits visible radiation
 - (D) its concentration remains always higher than other gases

6. 'Blue tooth' technology allows
 - (A) Landline phone to mobile phone communication
 - (B) Signal transmission on mobile phones only
 - (C) Wireless communication between equipment
 - (D) Satellite television communication

7. Harare is the capital of which country?

- (A) Turkey
- (B) Kenya
- (C) Indonesia
- (D) Zimbabwe

8. If 'P' is the chemical symbol for the element Phosphorus, what is the chemical name for the symbol 'Pb'?

- (A) Potassium
- (B) Lead
- (C) Silver
- (D) Gold

Answer Key for 4138

LOGIC	
1	B
2	B
3	B
4	C
5	A
DR	
1	B
2	D
3	C
4	D
NUMERACY	
1	B
2	C
3	D
4	A
5	C
6	B
IQ	
1	B
2	A
3	A
4	D
5	C
6	A
7	A
8	C
9	C
10	D
READING	
1	D
2	C
3	B
4	B
5	A
GK	
1	A
2	A
3	B
4	A
5	B
6	C
7	D
8	B