KTSE (Kutchi Talent Search Examination) – 2020
(Nanji Monji Dedhia Charitable Trust)

Name: _____ ID No.: _____

SET A

Instructions

- The exam duration is **120 minutes (2 hours)**
- There are 75 questions in two sections for a total of 100 marks
  - SECTION 1: 1 marks each (50 questions adding up to 50 marks)
  - SECTION 2: 2 marks each (25 questions adding upto 50 marks)
  - There is NO negative marking
- The rough work should be done on separate paper provided.

Answer Sheet

- All questions are multiple choice. With a **black pen**, fill the correct answer in the answer sheet separately provided.
- At the top, put down your name and the ID (registration) number
- There are two sets. Set A and Set B. The order of questions are different in each. **Please ensure that you correctly fill in circle A or B** depending on which question paper you get. It is important to fill this right so that the computer checks against the right answer keys.
- Fill in the ID number at the right also. Make sure that the ID number fields are filled properly (one in each column and not all in one column), and also written in the boxes above. Your ID number is the registration number given to you by KTSE. **Ensure that 3 digits are filled in. For example, if KTSE ID is 3, then put 003 as your ID**

Results

- The results will be announced by Thursday, 17th Sept
- Marks for everyone by ID number will be put up on the KTSE website, www.ktse.in. The correct answer list will also be put up.
- **Only the top 40 will called for the next interview round, that will be held on Saturday, 8th June.**
- Please do NOT call. Check the website www.ktse.in Only the top 40 will get email and/or SMS by Thursday, 17th Sept informing about interview time
- Round 1 (this aptitude test) will have 75% weightage and the interview will have 25% weightage while deciding the final 20 scholars.

SECTION 1

ALL QUESTIONS IN THIS SECTION ARE OF 1 MARKS

Q1: (1 mark) If we divided a stick that is 20 meters long into two equal parts, then we divided each part into two equal parts, and so on. Then after how many cutting processes the length of each one will be 62.5 cm?

A: 30 B: 3 C: 5 D: 31 E: 32

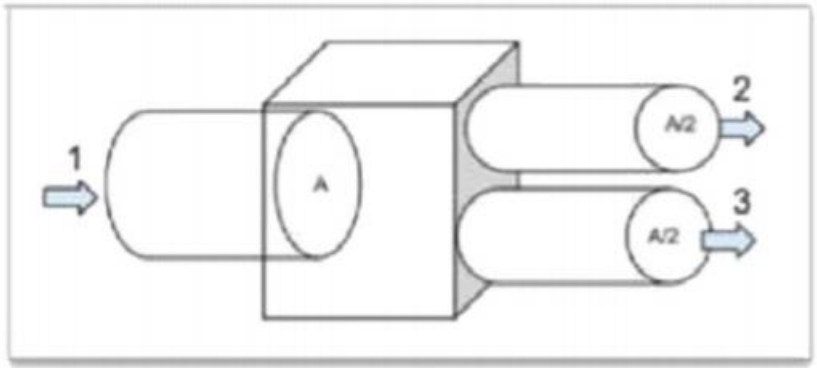
Q2: (1 mark) Manish, Ali, Manjit, and Kumar traveled by different means of transport (car, plane,train, ship). If Manish neither traveled by land nor by sea, Manjit traveled in his car, Kumar didn't travel by train. Then Ali traveled by:

A: Car B: Plane C: Train D: Ship E: Not enough info to decide

Q3: (1 mark) If a cylinder's weight, which is filled to its half capacity, is 250 Kg, and its weight, when it is filled to its three quarters, is 300 Kg, then find the weight of the cylinder when it is empty.

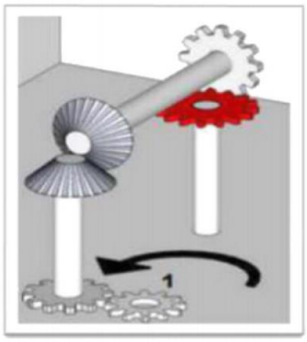
A: 50 kg B: 100 kg C: 150 kg D: 200 kg E: 225 kg

Q4: (1 mark) A tube, of area A, is attached to the left-hand side of a connector. Two tubes, of area A/2 each, are connected on the right-hand side. Water enters the system from the left tube, flows at a constant velocity through the connector, and exits via the two right-hand tubes. At which opening is the velocity of the water the greatest?



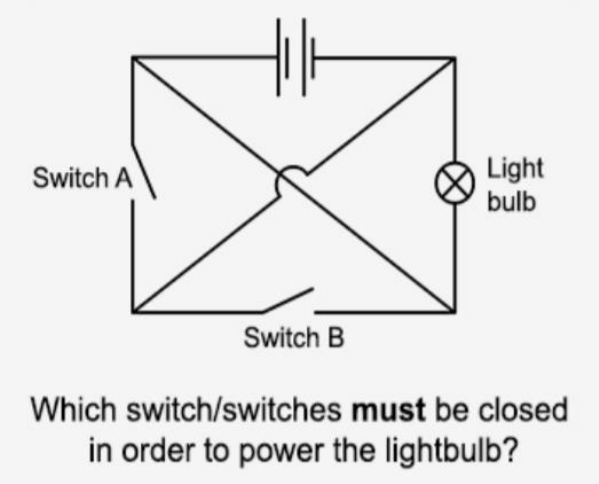
A: Opening 1 B: Opening 2 C: Opening 3 D: Opening 2 and 3
E: Same velocity at all openings

Q5: (1 mark) The grey cogwheel labelled 1 is being turned at a constant speed in a counter clockwise direction as shown in the diagram. The reg cogwheel has 16 teeth while the rest of the cogwheels have 12 teeth.
How will the red wheel rotate, and how will the speed compare to cogwheel 1 ?



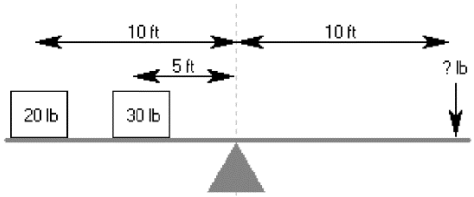
A: Anti-clockwise,slower B: Clockwise,Slower C: Anti-clockwise,faster D: Clockwise,faster E: It will not rotate

Q6: (1 mark) Which switch/switches must be closed in order to power the lightbulb on?



A: Switch A B: Switch B C: Switch A and B D: Close neither Switch A nor Switch B E: It is impossible to power the light bulb

Q7: (1 mark) How much weight is needed to balance the lever ?



A: 30 lbs B: 25 lbs C: 28 lbs D: 40 lbs E: 35 lbs

Q8: (1 mark) How many four digit numbers can be formed with the 10 digits 0,1,2..9 if no number can start with 0 an if repetitions of digits is not allowed ?

A: 4536 B: 9999 C: 5040 D: 9990 E: 6561

Q9: (1 mark) The following table gives sales data of five types of batteries for the years 2006 to 2012.

Year	Type I	Type II	Type III	Type IV	Type V
2006	75	144	114	102	108
2007	90	126	102	84	126
2008	96	114	75	105	135
2009	105	90	150	90	75
2010	90	75	135	75	90
2011	105	60	165	45	120
2012	115	85	160	100	145

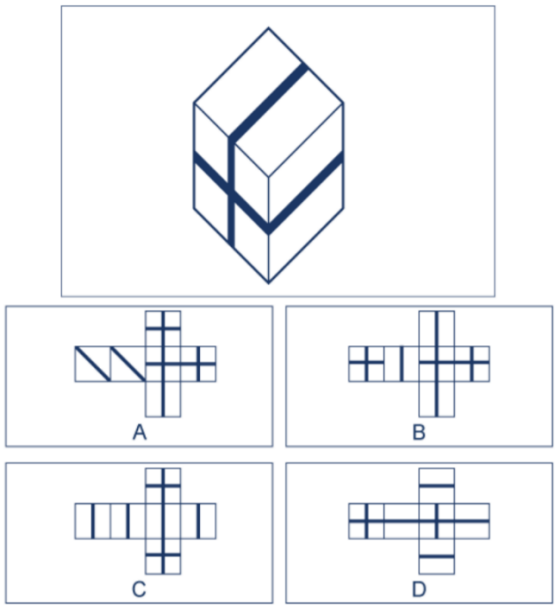
Which type of battery achieved highest growth between the years 2006 and 2012

A: Type V B: Type III C: Type II D: Type 1 E: Type IV

Q10: (1 mark) Several students were meeting in a room. After 45 of them left, the room was 5/8 as full as it was initially. How many students were left in the room?

A: 100 B: 120 C: 75 D: 80 E: 72

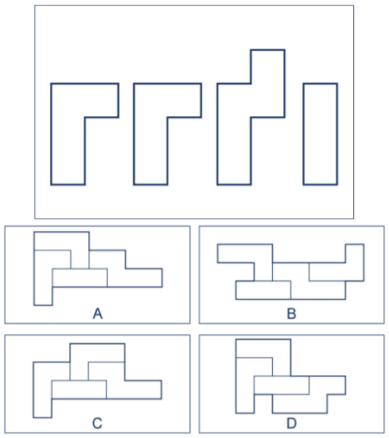
Q11: (1 mark)



If the cube is opened, which figure will you get ?

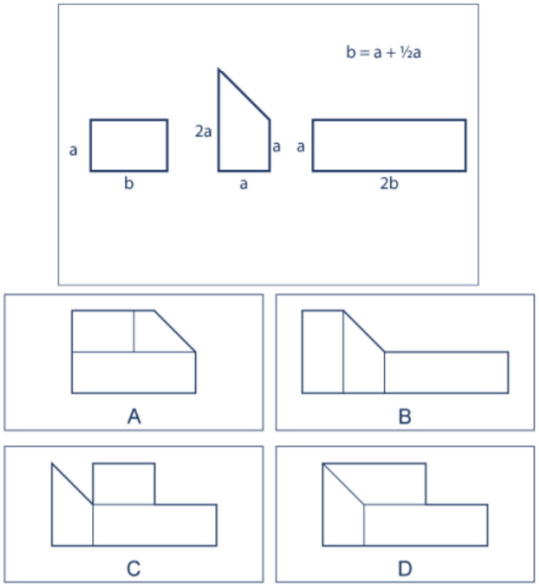
A: A B: B C: C D: D E: None of the above

Q12: (1 mark) Which figure can be formed only with 2D rotation ?



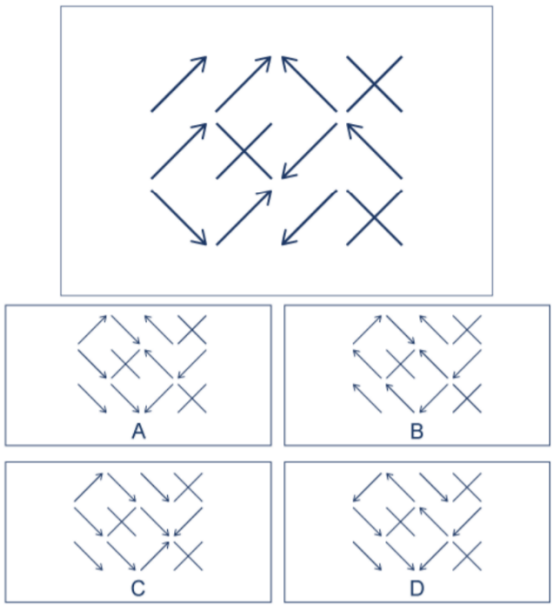
A: A B: B C: C D: D E: all of the above

Q13: (1 mark) Which figure can be formed with the given pieces ?



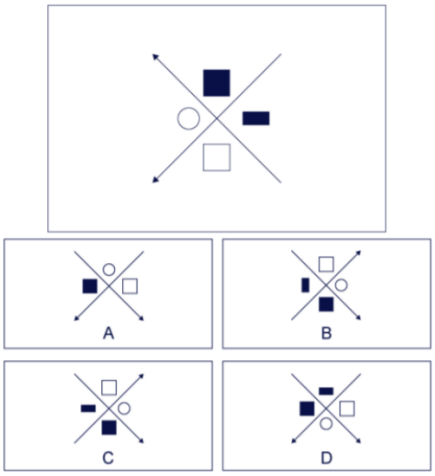
A: A B: B C: C D: D E: none of the above

Q14: (1 mark) Which figure is a vertical reflection across the X axis ?



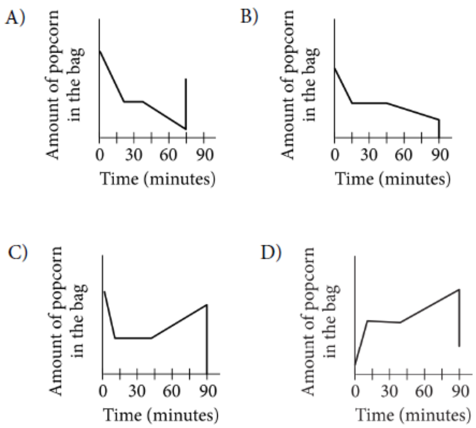
A: A B: B C: C D: D E: E

Q15: (1 mark) Which of the figures (A,B,C,D) is a rotation of the first ?



A: A B: B C: C D: D E: all of them

Q16: (1 mark) Jake buys a bag of popcorn at a movie theater. Heeats half of the popcorn during the 15 minutes of previews. After eating half of the popcorn, he stops eating for the next 30 minutes. Then he gradually eats the popcorn until he accidentally spills all of the remaining popcorn. Which of the following graphs could represent the situation?



A: A B: B C: C D: D E: none of the above

Q17: (1 mark) GGG) In 2015 the populations of City X and City Y were equal. From 2010 to 2015, the population of City X increased by 20% and the population of City Y decreased by 10%. If the population of City X was 120,000 in 2010, what was the population of City Y in 2010

A: 60,000 B: 90,000 C: 120,000 D: 160,000 E: 240,000

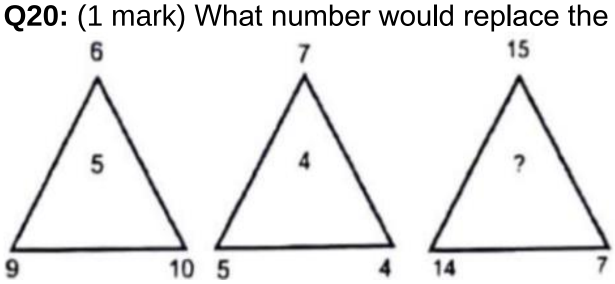
Q18: (1 mark) Juan purchased an antique that had a value of Rs. 20,000 at the time of purchase. Each year, the value of the antique is estimated to increase 10% over its value the previous year. The estimated value of the antique, in rupees, 2 years after purchase can be represented by the expression 20,000a, where a is a constant. What is the value of a?

A: 0.2 B: 1.2 C: 1.11 D: 1.21 E: 1.4

Q19: (1 mark) In certain code language if ELEPHANT is written as LEPEAHTN, what will be code of QUESTION in same language?

A: UQSEITNO B: SEUQNOTI C: UQESTINO D: EUQITSON E: UQSETINO

Q20: (1 mark) What number would replace the "?" ?



A: 3 B: 6 C: 8 D: 9 E: 10

Q21: (1 mark) Lock : Key :: ? : Needle
(Lock is to Key, similarly, ? is to Needle)

A: Shirt B: Finger C: Iron D: Tailor E: Thread

Q22: (1 mark) Sam's age is one fourth of Ali's age. Sam is eleven years elder to

Rahul but Deepak is five years younger to Rahul then what is the order in terms of age (highest to lowest)

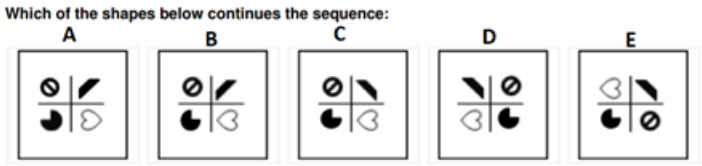
A: Ali, Sam, Rahul, Deepak B: Sam, Ali, Rahul, Deepak C: Sam, Ali, Deepak, Rahul D: Ali, Sam, Deepak, Rahul E: Rahul, Ali, Sam, Deepak

Q23: (1 mark) Which would be the next number in the sequence below

62, 64, 30, 32, 14, 16, ?

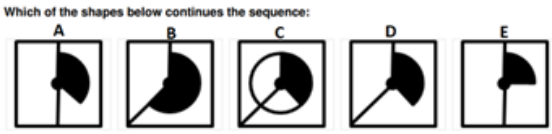
A: 12 B: 6 C: 18 D: 15 E: 8

Q24: (1 mark) Below is a sequence of figures. Choose the shape that continues it.



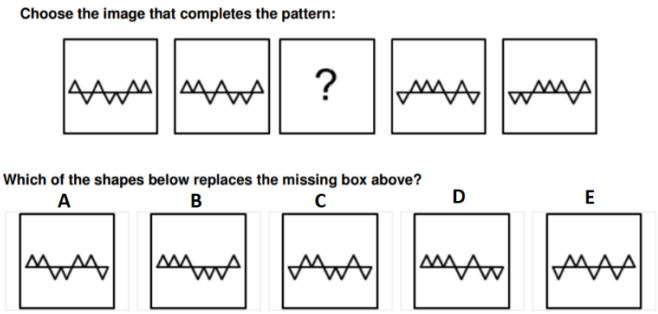
A: A B: B C: C D: D E: E

Q25: (1 mark) Below is a sequence of figures. Choose the shape that continues it.



A: A B: B C: C D: D E: E

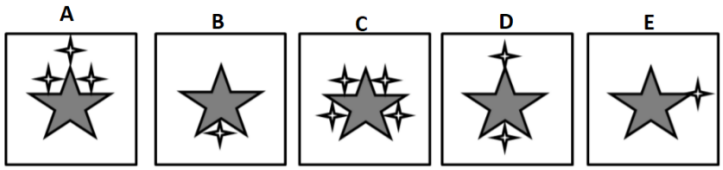
Q26: (1 mark)



A: A B: B C: C D: D E: E

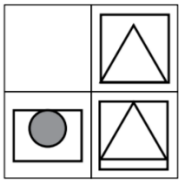
Q27: (1 mark)

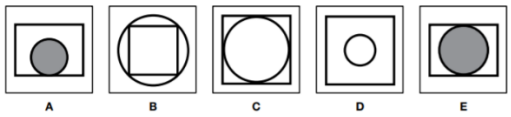
Choose the odd one out:



A: A B: B C: C D: D E: E

Q28: (1 mark) There is one missing shape in the pattern at the top. Which shape from the bottom row best completes the pattern?





A: A B: B C: C D: D E: E

Q29: (1 mark) How many small boxes of side 5 cm each can be accommodated in a rectangular box of size 25 × 15 ×10 cm

A: 20 B: 30 C: 5 D: 8 E: 10

Q30: (1 mark) There are 24 birds on a tree. A hunter fires a gun and 2 birds fall down to ground. How many birds are left on the tree?

A: 21 B: 22 C: 23 D: 0 E: 2

Q31: (1 mark) A shirt was listed initially at Rs. 1000. The shopkeeper increases the display price of the shirt by 20% and puts a board that there is a 20% discount on the display price. At what price would you be able to buy the shirt?

A: 1200 B: 1000 C: 1440 D: 960 E: 1040

Q32: (1 mark) In a cage, there are rabbits and parrots. The number of heads is 28 and number of feet is 72. Find the number of parrots and rabbits.

A: 14,14 B: 8,20 C: 20,8 D: 12,16 E: 16,12

Q33: (1 mark) Some students are divided into two groups A & B. If 10 students are sent from A to B, the number in each is the same. But if 20 students are sent from B to A, the number in A is double the number in B. Find the number of students in each group A & B.

A: 80,100 B: 110,70 C: 70,110 D: 30,30 E: 100,80

Q34: (1 mark) A group of 1200 persons consisting of captains and soldiers is travelling in a train. For every 15 soldiers there is one captain. The number of captains in the group is

A: 75 B: 80 C: 85 D: 90 E: 82

Q35: (1 mark) A farmer built a fence around his square plot. He used 27 fence poles on each side of the square. How many poles did he need altogether?

A: 100 B: 104 C: 108 D: 110 E: 121

Q36: (1 mark) In a family, the father took 1/4th of the cake and he had 3 times as much as each of the other members had. The total number of family members are

A: 3 B: 7 C: 9 D: 10 E: 12

Q37: (1 mark) In a city, 40% of the adults are illiterate while 85% of the children are literate. If the ratio of the adults to that of the children is 2:3, then what percent of the population is literate?

A: 20% B: 25% C: 50% D: 67% E: 75%

Q38: (1 mark) If a clock takes seven seconds to strikes seven, how many seconds will it take to strike ten?

A: 7 B: 9 C: 10 D: 8.5 E: none of the above

Q39: (1 mark) Mr and Mrs. Sharma have two children Asha and Shashi. Shashi married Radha, daughter of Mrs. Mahajan. Suresh, son of Mrs. Mahajan marries Rita. Sonu and Rocky are born to Suresh and Rita. Uma and Sudha are the daughters of Shashi and Radha. How is Sonu related to Mr. Mahajan?

A: Son B: Son-in-law C: Grandson D: great-grandfather E: not enough information to determine

Q40: (1 mark) A tourist drives 10 km towards east and turns to the right hand and drives 3 km. Then he drives towards west (turning to his right) 3 km. He then turns to his left and drives 2 km. Finally he turns to his right and travels 7 km. How far is he from his starting point and in which direction would he be facing?

A: 10 km, East B: 9 km, North C: 5 km, West D: 8 km, East E: 25 km, West

Q41: (1 mark) Three friends had dinner at a restaurant. When the bill was received, Amita paid 2/3 as much as Veena paid and Veena paid 1/2 as much as Tanya paid. What faction of the bill did Veena pay?

A: 1/3 B: 3/11 C: 12/13 D: 6/13 E: 6/11

Q42: (1 mark) Lieutenant James made an average of 3 arrests per week for 4 weeks. How many arrests does she need to make in the fifth week to raise her average to 4 arrests per week?

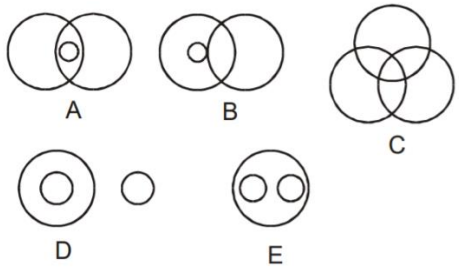
A: 4 B: 5 C: 6 D: 7 E: 8

Q43: (1 mark) In a town, 65% people watched the news on television, 40% read a newspaper and 25% read a newspaper and watched the news on television also. What percent of the people neither watched the news on television nor read a newspaper?

A: 5 B: 10 C: 15 D: 20 E: 0

Q44: (1 mark) Select the diagram that best represents the relation of terms

: Students, Females, MBA entrance candidates

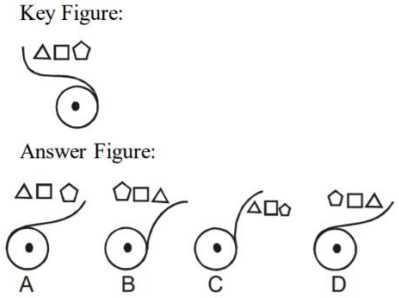


A: A B: B C: C D: D E: E

Q45: (1 mark) Which word does NOT belong with the others?

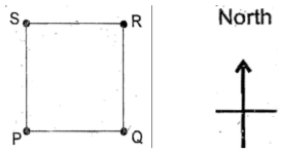
A: defendant B: prosecutor C: trial D: judge E: lawyer

Q46: (1 mark) Which of the answer figures is the mirror image of the key figure



A: A B: B C: C D: D E: all of the above

Q47: (1 mark) P, Q, R and S are four persons standing at the corners of a square park of area 100 m x 100 m. They move anticlockwise along the edge of the park by 100m, 150m, 200m and 250m respectively. Now in which direction is Q with respect to S?



A: Southeast B: Southwest C: Northeast D: Northwest E: North

Q48: (1 mark) The minute hand of a clock in the horizontal plane is on the number 6 of the clock and is pointing towards west. If the hour hand is pointing towards southeast, what time will the clock show exactly after three hours from now?

A: 1:30 B: 2:30 C: 4:30 D: 7:30 E: 10:30

Q49: (1 mark) Take the given statements as true and decide which of the conclusions logically follow from the statements
Statements :
a. All buses are ships.
b. All ships are aeroplanes.

Conclusions :
I. Some aeroplanes are ships.
II. All buses are aeroplanes

A: Only conclusion I follows B: Only conclusion II follows C: Both conclusions I and II follow D: Neither conclusion I nor II follows E: Insufficient data to decide

Q50: (1 mark) Eight books are kept one over other. Counting from the top, the second, fifth and sixth books are on plays. Two books on plays are between two books on composition. One book of plays is between two books on poetry while the book at the top of the book of literature is a book of composition. Which book is fourth from the top?

A: Plays B: Poetry C: Composition D: Literature E: Could be any of the above

Q51: (1 mark) Five girls are sitting on a bench to be photographed. Seema is to the left of Rani and to the right of Bindu. Mary is to the right of Rani. Reeta is between Rani and Mary. Who is sitting immediate right to Reeta?

A: Bindu B: Rani C: Mary D: Seema E: no one

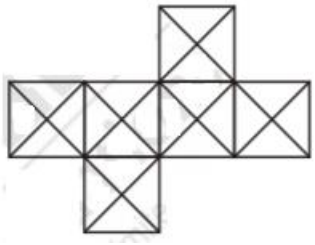
Q52: (1 mark) A blacksmith has five iron articles A, B, C, D and E, each having a different weight.

I. A weighs twice as much as B.
II. B weighs four-and-a-half times as much as C.
III. C weighs half as much as E.
IV. D weighs three fourth of E.
V. E weighs less than A but more than C.

E is lighter in weight than which of the other two articles?

A: D,C B: A,C C: D,B D: A,B E: A,D

Q53: (1 mark) Count the number of squares in the figure below



A: 6 B: 7 C: 8 D: 9 E: 11

Q54: (1 mark) there is a specific relationship between the first and the second term. The same relationship exists between the third and the fourth term. Find the relation and Choose the correct answer to replace the “?”.

? : ALKLO : : WOULD : TLRIA

A: BLOCK B:BARGE C:CONES D: DONOR E: WUZS

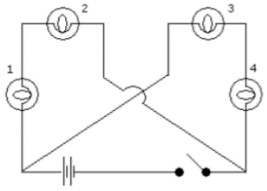
Q55: (1 mark) Ten years ago the ratio of ages of Sunil and Anil Was 1 : 7. Ten years hence the ratio of their ages will be 1 : 2. Find Sunil's present age.

A: 14 B: 40 C: 70 D: 28 E: 32

Q56: (1 mark) Sharad started from home for his work and drove 50 km towards the east, then took a right turn and drove another 30 km. He again took a left turn and drove 30 km in that direction. Then, he turned to his right and drove 30 km to reach his final destination. What is the shortest distance between Sharad’s home to his office?

A: 65 km B: 98 km C: 100 km D: 120 km E: 75 km

Q57: (1 mark) If bulb 1 is removed, how many bulbs will light up when the switch is closed ?

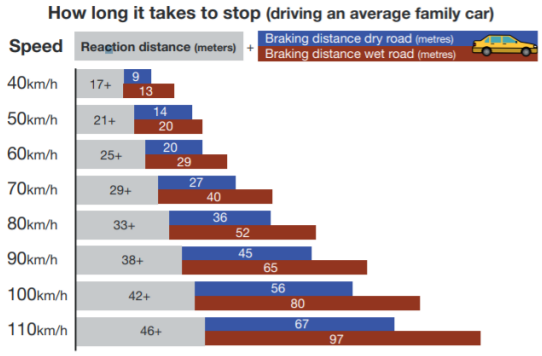


A: 0 B: 1 C: 2 D: 3 E: 4

Q58: (1 mark) Find the word that means most nearly the same as “join”.

A: mend B: connect C: choose D: like E: mix

Q59: (1 mark) The following graph shows the stopping distances for an average car. The reaction distance is the distance a car travels before the driver applies the brakes. The braking distance is the distance the car travels after applying the brakes. The stopping distance includes both the reaction distance and braking distance.



What would be the stopping distance for a car travelling at 80 kilometres per hour (km/h) on a dry road?

A: 33 B: 69 C: 85 D: 3 E: 52

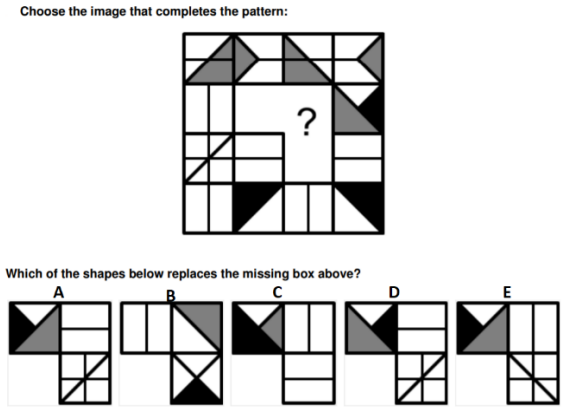
Q60: (1 mark) Find the two statements which together prove that Bob Smith owns a car.
A All employees at the Border Garage are mechanics.
B Everyone who works at the Border Garage owns a car.
C Bob Smith is a mechanic.
D Mechanics need to have a driver's licence.
E Bob Smith works at the Border Garage.

A: C&D B: A&E C: A&C D: B&E E: B

SECTION 2

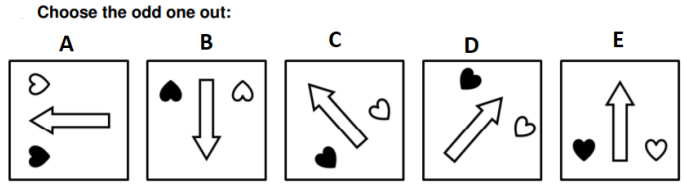
ALL QUESTIONS IN THIS SECTION ARE OF 2 MARKS

Q61: (2 marks)



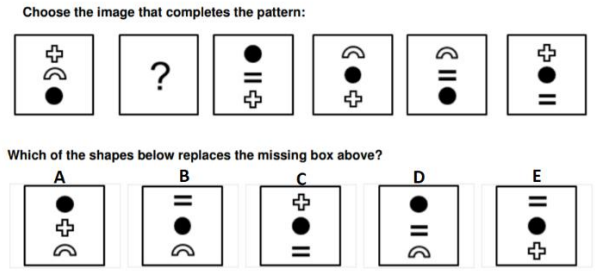
A: A B: B C: C D: D E: E

Q62: (2 marks)



A: A B: B C: C D: D E: E

Q63: (2 marks)



A: A B:B C: C D: D E: E

Q64: (2 marks) The six faces of a cube are painted in a manner that no two adjacent faces have the same colour. The three colours used are red, blue and green. The cube is then cut into 64 equal cubical parts. How many cubical parts have only two sides painted?

A: 16 B: 8 C: 24 D: 10 E: 0

Q65: (2 marks) Some students are sitting in a row. John is in 14th place from the left and James is in the 7th place from the right. There are 4 students between John and James. What is the minimum number of total students that is possible?

A: 15 B: 18 C: 20 D: 25 E: 27

Q66: (2 marks) In a certain coding system FLOWER is written as SEXOMF, how will you code GARDEN?

A: OEERBH B: OFESBH C: OEESBG D: OEERBG E: OEREBG

Q67: (2 marks)
This lock has a secret code that contains three numbers,
Find these numbers according to the given data:
548 - one of these numbers is correct, and it is in the right place.
530 – None of the numbers here is part of the code
157 - there are two correct numbers here, but they are in the wrong place.
806 - there is a correct number in here, but it is the wrong place.

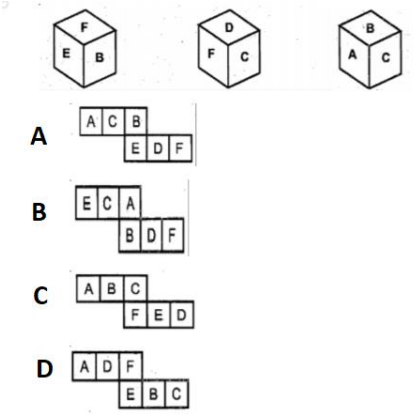
A: 708 B: 514 C: 781 D: 817 E: 718

Q68: (2 marks) In this problem,
i. A < B means A is daughter of B
ii. A > B means A is son of B
iii. A = B means A is brother of B
iv. A + B means A is father of B

Which of the following indicates "P is grandson of S"?

A: P = Q < R + S B: P > Q = R < S C: P + Q = R > S D: P < Q + R = S E: P + Q + S

Q69: (2 marks) The different faces of a cube are shown through three folded cubes. Among the alternatives, identify which one of the figures represents the unfolded cube



A: A B: B C: C D: D E: all of the above

Q70: (2 marks) Three persons A, B and C wore shirts of black, blue and orange colours (not

necessarily in that order) and pants of green, yellow and orange colours (not necessarily in that order). No person wore pant and shirt of the same colour.

Further, it is given that
1. A did not wear shirt of black colour.
2. B did not wear shirt of blue colour.
3. C did not wear shirt of orange colour.
4. A did not wear pant of green colour.
5. B wore pant of orange colour.

What were the colours of pant and shirt worn by C, respectively?

A: Yellow and Black B: Black and Yellow C: Green and Blue
D: Blue and Green E: Orange and Black

Q71: (2 marks) A dishonest shopkeeper pretends to sell his goods at cost price but uses false weights and gains 11 1/9 %. For a weight of 1 kg he uses:

A: a weight of 875 gm B: a weight of 900 gm C: a weight of 925 gm D: a weight of 950 gm E: a weight of 1119 gm

Q72: (2 marks) A, B, C, D, E, F and G are members of a family consisting of four adults and three children. There are four females and 3 male members in the family two of whom, F and G are girls. A and D are brothers and A is a doctor. E is an engineer married to one of the brothers and has two children. if B is married to D and G is their child. Who is C ?
A: A's son B: E's daughter C: F's father D: G's brother E: D's daughter

Q73: (2 marks) During the construction of the Quebec Bridge in 1907, the bridge's designer, Theodore Cooper, received word that the suspended span being built out from the Bridge's cantilever was deflecting downward by a fraction of an inch [2.56 centimeters]. Before he could telegraph to freeze the project, the whole cantilever arm broke off and plunged, along with seven dozen workers, into the St. Lawrence River. It was the worst bridge construction disaster in history. As a direct result of the inquiry that followed, the engineering "rules of thumb" by which thousands of bridges had been built around the world went down with the Quebec Bridge. Twentieth-century bridge engineers would thereafter depend on far more rigorous applications of mathematical analysis.

Which one of the following statements can be properly inferred from the passage?
(A) Bridges built before about 1907 were built without thorough mathematical analysis and, therefore, were unsafe for the public to use.
(B) Cooper's absence from the Quebec Bridge construction site resulted in the breaking off of the cantilever.
(C) Nineteenth-century bridge engineers relied on their rules of thumb because analytical methods were inadequate to solve their design problems.
(D) Only a more rigorous application of mathematical analysis to the design of the Quebec Bridge could have prevented its collapse.
(E) Prior to 1907 the mathematical analysis incorporated in engineering rules of thumb was insufficient to completely assure the safety of bridges under construction.

A: A B: B C: C D: D E: E

Q74: (2 marks) Photovoltaic power plants produce electricity from sunlight. As a result of astonishing recent technological advances, the cost of producing electric power at photovoltaic power plants, allowing for both construction and operating costs, is one-tenth of what it was 20 years ago, whereas the corresponding cost for traditional plants, which burn fossil fuels, has increased. Thus, photovoltaic power plants offer a less expensive approach to meeting demand for electricity than do traditional power plants.
The conclusion of the argument is properly drawn if which one of the following is assumed?
(A) The cost of producing electric power at traditional plants has increased over the past 20 years.
(B) Twenty years ago, traditional power plants were producing 10 times more electric power than were photovoltaic plants.
(C) None of the recent technological advances in producing electric power at photovoltaic plants can be applied to producing power at traditional plants.
(D) Twenty years ago, the cost of producing electric power at photovoltaic plants was less than 10 times the cost of producing power at traditional plants.
(E) The cost of producing electric power at photo-voltaic plants is expected to decrease further, while the cost of producing power at traditional plants is not expected to decrease.

A: A B: B C: C D: D E: E

Q75: (2 marks) Seven piano students—T, U, V, W, X, Y, and Z—are to give a recital, and their instructor is deciding the order in which they will perform. Each student will play exactly one piece, a piano solo. In deciding the order of performance, the instructor must observe the following restrictions:

X cannot play first or second.
W cannot play until X has played.
Neither T nor Y can play seventh.
Either Y or Z must play immediately after W plays.
V must play either immediately after or immediately before U plays.

If V plays first, which one of the following must be true?
(A) T plays sixth.
(B) X plays third.
(C) Z plays seventh.
(D) T plays immediately after Y.
(E) W plays immediately after X.

A: A B: B C: C D: D E: E

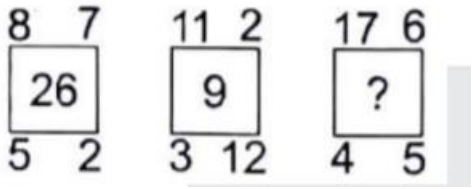
Q76: (2 marks) What is the smallest number of ducks that can swim in this formation- two ducks in front of a duck, two ducks behind a duck and a duck between two ducks?

A: 3 B: 4 C: 5 D: 6 E: 7

Q77: (2 marks) Aruna cut a cake into two halves and cuts one half into smaller pieces of equal size. Each of the small pieces is twenty grams in weight. If she has seven pieces of the cake in all with her, how heavy was the original cake?

A: 120 gms B: 140 gms C: 180 gms D: 240 gms E: 70 gms

Q78: (2 marks) What number would replace the "?" ?



A: 18 B: 20 C: 28 D: 30 E: 38

Q79: (2 marks) Electrons orbit around the nucleus of an atom in the same way that the Earth orbits around the Sun. It is well known that gravity is the major force that determines the orbit of the Earth. We may, therefore, expect that gravity is the main force that determines the orbit of an electron.

The argument above attempts to prove its case by

(A) applying well-known general laws to a specific case
(B) appealing to well-known specific cases to prove a general law about them
(C) testing its conclusion by a definite experiment
(D) appealing to an apparently similar case
(E) stating its conclusion without giving any kind of reason to think it might be true

A: A B: B C: C D: D E: E

Q80: (2 marks)
For every 50 people that contract a certain disease, one will die from it. A vaccine exists that is virtually 100 percent effective in preventing this disease. Since the risk of death from complications of vaccination is one death per 5,000 vaccinations, it is therefore safer for a person to receive the vaccine than not to receive it.

Which one of the following would it be most helpful to know in order to evaluate the argument?

(A) the total number of people that die each year from all causes taken together
(B) whether elderly people have a higher risk of complications from the vaccine
(C) the number of people that die each year from diseases other than the disease in question
(D) whether people really trust the safety of the vaccine
(E) the likelihood that an unvaccinated person will contract the disease in question

Rough Work