

## Model Questions for Entrance Exam (Class XI)

Full Marks=90  
Time=90 minutes

### Section A: English (25 Marks)

Time: 30 minutes

#### Part I: Comprehensive Test

Read the following passage and choose the answers that best fits the questions. (2\*5=10)

There are people who seem to be always busy, and yet they never seem to accomplish anything. They are capable, and they really work hard, and still they have little to show for all their work. Their failure is probably due to lack of method in their work. Method in work means certain wise orderliness in doing their work. It is working according to some plan which experience has proved to be sound. It involves mapping out of our time, taking things in right turn, finishing one job before we tackle another.

For a student, method in study is very important. Lazy students, who take it easy in their first year at college, get hopelessly behind with their studies and at last have to take to feverish cramming as the examination approaches. As a result of this lack of proper method the students generally get failed. On the other hand, there are over eager and impatient students who want to run before they have learnt to walk. Instead of doing each day's work thoroughly as it comes, they rush to more advanced parts of their subjects, only further confusing themselves.

1. Why do people fail?
  - a. Because of method
  - b. Because of some plan
  - c. Because of insufficiency in wise orderliness
  - d. Because of right turns
2. From the passage 'Lack of Method' means:
  - a. presence of wise decision done in an ordered way
  - b. lack of decision done in an ordered way
  - c. lack of sound experience
  - d. mapping out of our time well
3. Feverish cramming is closest in meaning to ...
  - a. panicing
  - b. enjoying
  - c. fearing
  - d. chilling
4. The result of feverish cramming is ...
  - a. rushing in the exam time
  - b. passing with low grade
  - c. failure in passing the exam
  - d. poor performance

5. What's wrong with over-enthusiastic students?
- they learn to walk before they run
  - they get confused in easier concepts
  - they go thoroughly in each day's work
  - they rush to more upsurging topics

**Part II: Grammar/Vocabulary Test**

**Tick the best options. (1\*15=15)**

1. The past participle of the word 'seek' is:
- Seeks
  - Seeking
  - Seeker
  - Sought
2. When the bull began to run \_\_\_\_\_ me, I jumped over the fence.
- To
  - Towards
  - Up to
  - Into
3. His bullet whistled \_\_\_\_\_ my ear.
- From
  - By
  - Past
  - Over
4. I'll be a bird someday if I \_\_\_\_\_ good enough.
- Was
  - Were
  - Am
  - Shall
5. I \_\_\_\_\_ my math once a week.
- Practice
  - Am practicing
  - Practise
  - Will practise
6. I should have been a dancer, \_\_\_\_\_?
- Haven't I?
  - Shouldn't I?
  - Don't I?
  - Aren't I?
7. The synonym of the word 'abattoir' is:
- prison
  - barn
  - slaughterhouse
  - cowshed

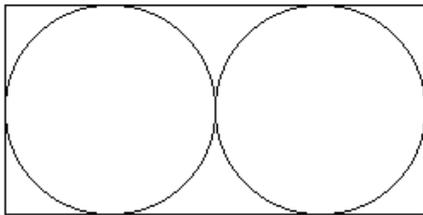
8. The antonym of the word 'incessant' is:
- much more
  - few
  - fragile
  - abundant
9. I shall meet you in \_\_\_\_\_ union.
- a
  - an
  - the
  - all of the above
10. \_\_\_\_\_ honesty of Solomon is well known.
- An
  - The
  - A
  - None of the above
11. Pass me the sugar, \_\_\_\_\_?
- Will you?
  - Shall you?
  - Do you?
  - Don't you?
12. The president and manager \_\_\_\_\_ absent today.
- Is
  - Are
  - Has
  - Am
13. Unless you study hard, you \_\_\_\_\_ pass the exam.
- Will
  - Won't
  - Would
  - Wouldn't
14. He worked very hard \_\_\_\_\_ pass the exam.
- So that
  - That
  - In order to
  - Towards
15. 'People say that elephants never forget a thing.' The passive voice is:
- Not a thing is forgotten by an elephant.
  - It is believed that elephants never forget a thing.
  - Elephants are believed to never forgetting.
  - No passive form

Section B: Mathematics (30 Marks)

Time: 25 minutes

Tick the best options. (1\*30=30)

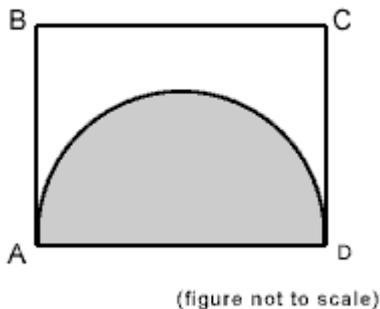
1. Which of the following could be sides of a right angled triangle?
  - a. 3, 4, 5
  - b. 5, 12, 13
  - c. 8, 15, 17
  - d. 9, 12, 15
2. Two equal circles are cut out of a rectangle of dimension  $16 \times 8$ . The circles have the maximum diameter possible. What is the area of the remaining part of the rectangle after the circles have been cut out?



- a.  $128 - 32\pi$
  - b.  $128 - 64\pi$
  - c.  $32 - \pi$
  - d.  $64 - \pi$
3. A wheel has a diameter of  $x$  inches and a second wheel has a diameter of  $y$  inches. The first wheel covers a distance of  $d$  feet in 10 revolutions. How many revolutions does the second wheel make in covering the  $d$  feet?
    - a.  $10xy$
    - b.  $10x/y$
    - c.  $10\pi y$
    - d.  $20\pi y$
  4. In the sequence  $-12, -9, -6, \dots$ , each term is 3 greater than the preceding term. Which of the following could be the member of the sequence?
    - a. 999
    - b. 888
    - c. 777
    - d. 111
  5. 12 litres of water are poured into an aquarium of dimensions 50 cm length, 30 cm breadth and 40 cm height. How high (in cm) will the water rise? (1lt =  $1000 \text{ cm}^3$ )
    - a. 6
    - b. 8
    - c. 10
    - d. 12
  6. Six years ago Anita was  $P$  times as old as Ben was. If Anita is now 17 years old, how old is Ben now in terms of  $P$ ?
    - a.  $11/P + 6$
    - b.  $P/11 + 6$
    - c.  $6 - 11/P$
    - d.  $6 * 11/P$

7. A dress on sale in a shop is marked at Rs.  $D$ . During the discount sale its price is reduced by 15%. Staff are allowed a further 10% reduction on the discounted price. If a staff member buys the dress what will she have to pay in terms of  $D$ ?
- $0.705D$
  - $0.675D$
  - $0.775D$
  - $0.805D$
8. Sheila works 8 hours per day on Monday, Wednesday and Friday, and 6 hours per day on Tuesday and Thursday. She does not work on Saturday and Sunday. She earns Rs. 324 per week. How much does she earn in Rs. per hour?
- 11
  - 10
  - 9
  - 8
9. The three sides of a triangle are in the ratio of 5:4:3. The perimeter of the triangle is the multiple of ...
- 5
  - 6
  - 7
  - 8
10. If 1 USD = Rs. 110 and 10 Japanese Yen = Rs. 6, then 1 USD = ?
- $110 \cdot 10 / 6$
  - $110 \cdot 6 / 10$
  - $6 / (110 \cdot 10)$
  - $10 / (110 \cdot 6)$
11. If  $n(A)=12$ ,  $n(B)=14$ , the maximum value of  $n(A \cap B)=?$
- 12
  - 14
  - 4
  - 2
12. A machine puts caps on  $c$  bottles in  $m$  minutes. How many hours will it take to put caps on  $b$  bottles?
- $bm/60c$
  - $bc/60m$
  - $mc/60b$
  - $b^2c/60m$
13. What is the greatest of 3 consecutive integers whose sum is 24?
- 6
  - 7
  - 8
  - 9
14. If  $f(3)=20$  and  $f(5)=30$ , which of the following could be the value of  $f(x)$ ?
- $4x+3$
  - $2x^2-2x$
  - $2x^2-x$
  - $5x+5$

15. If  $V=12R/(r+R)$ , then  $R=?$
- $Vr/(12-V)$
  - $Vr+V/12$
  - $Vr-12$
  - $V/r-12$
16. Rectangle ABCD has a perimeter of 26. The half circle with diameter AD has an area of  $8\pi$ . What is the perimeter of the part of the figure that is not shaded?



- $26+4\pi$
  - $18+8\pi$
  - $14+4\pi$
  - $18+4\pi$
17. If  $a=10^x$ ,  $b=10^y$  and  $a^y b^x=100$ , then  $xy=?$
- 1
  - 10
  - 100
  - 1000
18. A two digit number is such that its digit in the unit place is double than the digit in the tenth place. If the digits are added up, the sum along with two digits form three consecutive numbers. The number is ...
- 12
  - 24
  - 36
  - 48
19. The area of a triangle when three sides a, b and c are known, is given by the formula
- $b \cdot h/2$
  - $(a+b+c)/2$
  - $\sqrt{s(s-a)(s-b)(s-c)}$
  - $\sqrt{s^2 \cdot a \cdot b \cdot c}$
20. For a triangle if it is formed on the same base as that of a parallelogram, then the area of the triangle is
- Equal to the area of the parallelogram
  - Half of the area of the parallelogram
  - One third of the area of the parallelogram
  - One fourth of the area of the parallelogram

21. An arc of a circle forms an angle of  $60^\circ$  at its center. If the radius of the circle is  $q$ , the length of the arc is
- $\pi q/2$
  - $\pi q/3$
  - $\pi q/4$
  - $\pi q/5$
22. A tangent to a circle always makes an angle of ... with the diameter which runs through the center of the circle and the contact point of the tangent and the circle.
- $30^\circ$
  - $45^\circ$
  - $60^\circ$
  - $90^\circ$
23. The mean of the data: 6.55, 7.45, 8.35, 8.15, 6.85 is ...
- 6.55
  - 7.45
  - 8.35
  - 8.15
24. The second quartile is equal to the ...
- Arithmetic Mean
  - Geometric Mean
  - Median
  - Mode
25. If  $P(A)=1/3$ ,  $P(B)=1/7$  and  $P(A \cup B)=10/21$ , then
- $P(A \cap B)=0$
  - $P(A \cap B)'=0$
  - $P(A \cup B)$  is independent of  $P(A)$
  - $P(A \cup B)'=1$
26. Mutually exclusive events are
- Dependent
  - Inclusive
  - Independent
  - Never zero
27. Volume of a triangular pyramid is equal to
- $1/2 \times \text{area of the base triangle} \times \text{slanting length}$
  - $1/3 \times \text{area of the front face} \times \text{slanting length}$
  - $1/2 \times \text{area of the base triangle} \times \text{height}$
  - $1/3 \times \text{area of the base triangle} \times \text{height}$
28. The total surface area of a hemisphere is
- $2 \pi r^2$
  - $3 \pi r^2$
  - $4 \pi r^2$
  - $5 \pi r^2$
29. If  $f(x)=ax+b$ , then  $f^{-1}(x)=?$
- $(x+b)/a$
  - $(x+a)/b$
  - $(x-a)/b$
  - $(x-b)/a$

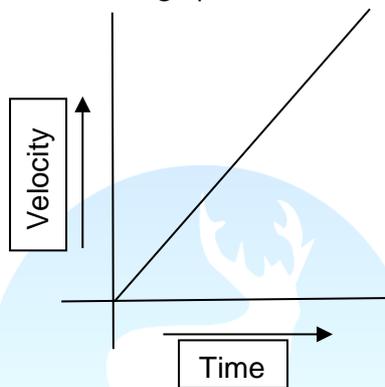
30. A class contains  $p$  boys and  $q$  girls. The probability of selecting a girl is ...
- $p/(p+q)$
  - $q/(p+q)$
  - $(p+q)/p$
  - $(p+q)/q$

**Section C: Science (30 Marks)**  
**25 minutes**

**Tick the best options. (1\*30=30)**

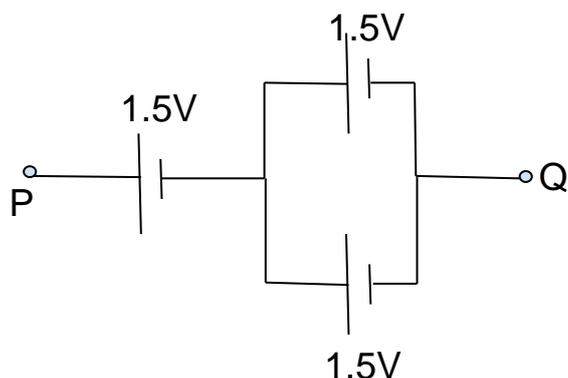
1. The SI unit of momentum is
- $\text{kg m}^{-2}$
  - $\text{kg m}^{-3}$
  - $\text{kg ms}^{-1}$
  - $\text{kg m}^2\text{s}^{-2}$

2. The graph below shows



- Uniform velocity
  - Uniform acceleration
  - Decreasing velocity
  - Variable acceleration
3. Two vectors  $3\vec{i} + 2\vec{j}$  and  $12\vec{i} + 8\vec{j}$  are parallel to each other. The magnitude of vector product between them is
- 36
  - 16
  - 0
  - 52
4. You cannot walk properly on a sandy surface because
- Camel can walk properly
  - Elephant can run on the sand
  - The time of impact is more on the sandy surface
  - You get less reaction than your weight on the sandy surface
5. The temperature of the sun at its core is around
- 5 million degree Celsius
  - 8 million degree Celsius
  - 9 million degree Celsius
  - 13 million degree Celsius

6. The focal length of a lens is +5mm. Its power should be
- 100D
  - 200D
  - 300D
  - 400D
7. The total p.d. of the combination across PQ is



- 3 V
  - 4.5 V
  - 5 V
  - 8.5 V
8. In an A.C., one of these holds true
- Potential in the circuit is high
  - Polarity changes continuously at a constant rate
  - Polarity does not change continuously
  - Resistance in the circuit is very low
9. Ball pen functions on the principle of
- Viscosity
  - Boyle's law
  - Gravitational force
  - Surface tension
10. Hydraulic press is based on
- Pascal's law
  - Archimedes' principle
  - Law of Floatation
  - Liquid pressure
11. The chemical name of laughing gas is
- Nitric oxide
  - Nitrous oxide
  - Nitric acid
  - Nitrous acid
12. Which acid is injected into our body when ants bite us?
- Oxalic acid
  - Formic acid
  - Acetic acid
  - Carbonic acid

13. The atomic theory was given by
- Chadwick
  - J.J Thomson
  - John Dalton
  - E. Rutherford
14. Gram molecular weight of Calcium Carbonate is
- 44 gms
  - 98 gms
  - 100 gms
  - 20 gms
15. Which of the following is called a positive electron?
- Proton
  - Positron
  - Protium
  - Protonium
16. Na is reactive than C because
- It has valency 1
  - It has smaller radius
  - It has less electrons
  - It has more protons
17. We can prepare one mole of carbon dioxide gas by reacting ... mole/s of  $CaCO_3$  with ... moles of  $HCl$ .
- 2,1
  - 1,2
  - 4,2
  - 2,4
18. Hydrated iron III oxide, also known as rust, can be written as
- $nFe_2O_3 \cdot nH_2O$
  - $\frac{n}{2}Fe_2O_3 \cdot 3nH_2O$
  - $nFe_3 \cdot 3nH_2O$
  - $Fe_2O_3 \cdot nH_2O$
19. Saturated hydrocarbons are
- Alkanes
  - Alkenes
  - Alkynes
  - Alcohol
20. DDT refers to
- Dichloro-diphenyl-trinitro-ethane
  - Difloro-diphenyl-trichloro-ethene
  - Dichloro-diphenyl-trichloro-ethane
  - dichloro-diphenyl-trifloro-ethane

21. Winter sleep is known as
- Sleeping
  - Hibernation
  - Variation
  - Mutation
22. Horse has
- Two chambered heart
  - Three chambered heart
  - Four chambered heart
  - None
23. Stiff neck is a symptom of
- Rabies
  - Mumps
  - Measles
  - Polio
24. Spirogyra reproduces by means of
- Fragmentation
  - Regeneration
  - Budding
  - Sporulation
25. The full form of DNA is
- Deoxyribo Nucleic Acid
  - Double Nitrogen Acid
  - Ribo Nucleic Acid
  - Deoxy Nucleic Acid
26. Poikilothermic animals are also known as
- Red blooded animals
  - White blooded animals
  - Cold blooded animals
  - Warm blooded animals
27. Evolution of life took place around
- 400 millions years ago
  - 500 millions years ago
  - 600 millions years ago
  - 700 millions years ago
28. The pyramid of aquatic ecosystem is
- Erected
  - Inverted
  - Horizontal
  - Vertical
29. The function of insulin is to
- Control the other glands
  - Control the blood sugar
  - Develop male sex organs
  - Develop female sex organs

30. Function of nephrons is to

- a. Purify urine
- b. Purify blood
- c. Purify saliva
- d. Purify enzymes

**Section D: IQ (5 Marks)**

**Time: 10 minutes**

**Tick the best options. (1\*5=5)**

1. Rearranging the letters SISURA will give us the name of
  - a. A person
  - b. A city
  - c. A country
  - d. A food
2. Which number should come next in the series 24,23,21,18,14?
  - a. 5
  - b. 6
  - c. 8
  - d. 9
3. In a party, 10 people were present. If each person made a handshake, how many unique handshakes were performed?
  - a. 35
  - b. 45
  - c. 55
  - d. 65
4. If a frog can jump 2 m at a time and each time it jumps it slips by 1 m, how many times will it take of jump of a well 10 m deep?
  - a. 8
  - b. 9
  - c. 10
  - d. 11
5. If ant=11420, then toy=
  - a. 211233
  - b. 212321
  - c. 201525
  - d. 252620