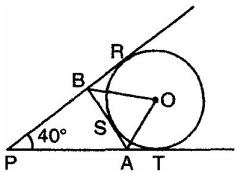
1. Triangle PAB is formed by three tangents to circle O and $\angle APB = 40^{o}$ then angle AOB =



A. 45°
B. 50°
C. 55°
D. 70°

2. A swimming pool is being filled with water at a rate of 1 inch/minute. The owners started filling the pool at 6:00 a.m. What time was it when the water was 6 feet deep?

A. 6:06 am
B. 7: 06 am
C. 7:00am
D. 7:l2am

3. Complete the number pattern below.
10, 17, 24, 31, 38, -

A. 48
B. 45
C. 74
D. 13

4. Divide 116 among four parts such that 5 added to first part, 4 subtracted from second part, third multiplied by 3 and the fourth divided by 2 are all equal

A. 22,31,9,54
B. 32,21,9,60
C. 24, 36,72, 90
D. 15, 30, 45, 60

5. $If\ 2^{x} = 4^{y} = 8^{z}\ and \left(\frac{1}{2x} + \frac{1}{4y} + \frac{1}{6z}\right) = \frac{24}{1,}\ then\ the\ value\ of\ z\ is ----$

A. $\frac{7}{16}$
B. $\frac{7}{32}$
C. $\frac{7}{48}$
D. $\frac{7}{64}$

6. Eight people are planning to share equally the cost of a rental car. If one person withdraws from the arrangement and the others share equally the entire rental of the car, then the share of each of the remaining persons increased by

A. 1/9
B. 1/8
C. 1/7
D. 7/8

7. A student was asked to divide a number by 6 and add 12 to the quotient. H, however, first added 12 to the number and then divided it by 6, getting 112 as the answer. The correct answer should have been

A. 122
B. 118
C. 114
D. 124

8. Which of the following is another way to represent this expression? 3a (b + 5c)

A. 3a (5bc)
B. 3a (B) + 5c
C. 3a (B) + l5ac
D. (3a + b) (3a + 5c)

9. The parents library committee printed 350 books of 24 raffle tickets. After all the tickets are sold, they plan to draw 30 winning tickets. Abhi bought 5 tickets. Which of the following is closest to the probability that he will win

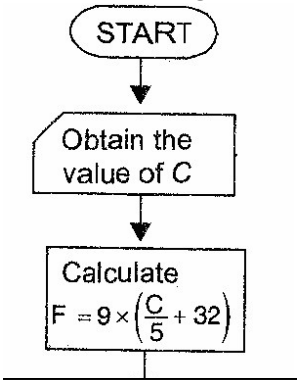
A. 1/6
B. 1/56
C. 1/70
D. 1/280

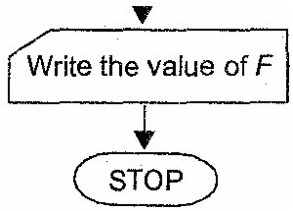
10. Ms. Radhika works at a music store. Last week she sold 6 more than 3 times the number of CDs that she sold this week. Ms. Radhika sold a total of 108 CDs over the 2 weeks. Which system of equations can be used to find I, the number of CDs she sold last week and t the number of CDs she sold this week?

A. l + t =108
t = 3l + 6

B. l + t= 108
t =3l - 6
C. l + t =108
t =31 - 6
D. l + t =108
l = 3t + 6

11. To convert a given temperature in Celsius scale to Fahrenheit scale, the following flowchart is generated.





Is the generated flowchart correct?

A. Yes
B. No
C. Can't say
D. Information is incomplete

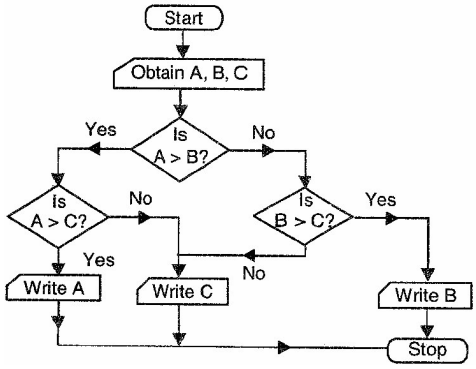
12. The horizontal distance between two towers is 60 m. The angle of depression of the first tower when seen from the top of the second tower is 30^o. If the height of the second tower is 150 m, find the height of the first tower

A. 115.4m
B. 112.43m
C. 110.4m
D. 110m

13. If a < b and b = c, which statement must be true?

A. The values of a, b and c are positive
B. The values of a, b and c are negative
C. The value of a is less than the value of c
D. The value of a is greater than the value of c

14. The given flowchart depicts how to find the largest of three unequal given numbers? Is the given flowchart correct?



A. Yes
B. No
C. Can't say
D. Information is incomplete

15. If (x -1) is a factor of a^2x^2 - 3ax + 3a -1, find the values of a

A. ± 4
B. ± 3
C. ± 2
D. ± 1

16. Ice floats on the surface of water because

A. It is heavier than water
B. The density of both water and ice is the same
C. Ice is lighter than water
D. None of the above

17. The forces of attraction between the particles of matter are maximum in

A. Iron rod
B. Kerosene oil
C. Glycerine
D. Dry air

18. When sodium hydroxide is added to ferric chloride solution, a reddish brown precipitate is formed The precipitate is separated from the mixture by the process of

A. Evaporation
B. Sublimation
C. Filtration
D. Fractional distillation

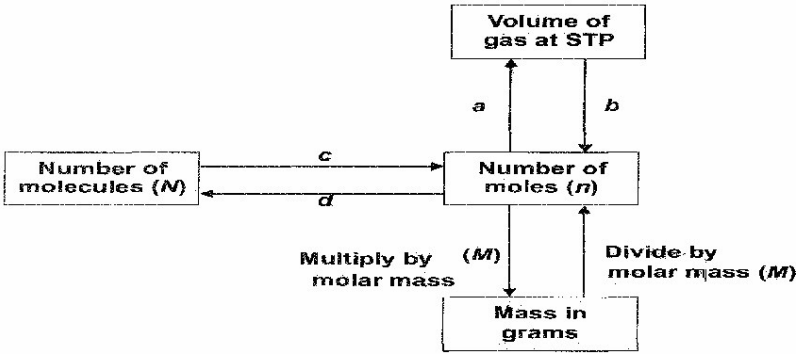
19. In an experiment, oxygen was added to hydrogen and heated. On burning a substance containing both oxygen and hydrogen was formed. What is this substance?

A. Element
B. Compound
C. Solution
D. Mixture

20. The atomic mass of oxygen is 16 and the molecular mass of ozone is 48. What is the atomicity of ozone if it is an allotrope of oxygen?

A. 1
B. 2
C. 3
D. 4

21. Observe the flow chart and answer What are a and b ?



A. a = multiply by 22.4 L, b = multiply by 22.4 L
B. a = multiply by 22.4 L, b = divide by 22.4 L
C. a = divide by 22.4 L, b = divide by 22.4 L
D. a = divide by 22.4 L, b = multiply by 22.4 L

22. Helium $\left(\begin{matrix}4\\2\end{matrix}He\right)$ has :-

A. 2 P + and 2 n^o
B. 2P + and 4 n^o
C. 4 P + and 2 n^o
D. 2P + and 3 n^o

23. How many electrons does Na^+ has in its Outermost shell?

A. 10
B. 11
C. 18
D. 8

24. Mitochondria and chloroplasts are known as semiautonomous organelles because

A. They have double membrane covering
B. They have their own DNA and ribosomes
C. They are preseNone of the abovent in all kinds of cells
D. None of the above

25. A cell is able to withstand very dilute external media without bursting. In such media, which of the following things could happen?

A. The cell is likely to swell up
B. The cell will stay the same size
C. The cell will shrink
D. None of these

26. Which of the following statements regarding apical meristem is not true?

A. It brings about the elongation of the root and stem
B. It brings about secondary growth
C. It brings about primary growth
D. None of the above

27. The walls of cork cells are thickened by the deposition of an organic substance which makes these cells impermeable to water and gases. This substance is

A. Pectin
B. Suberin
C. Lignin
D. None of these

28. Which of the following statements is true about dicotyledons?

A. Their root system consists of similar fibrous roots
B. Their leaves have parallel venation
C. Their vascular bundles are arranged in a ring
D. Their flowers are trimerous

29. Match column I with column Il and select the correct answer from the codes given below

Column I	Column II
(a) Sea anemone	(i) Nematoda
(b) Tape worm	(ii) Annelida
(c) Round worm	(iii) Mollusca
(d) Earthworm	(iv)Platyhelminthes
(e) Starfish	(v) Cnidaria
	(vi) Echinodermata

A.	a	b	c	d	e
	(v)	(i)	(iv)	(ii)	(vi)

B.	a	b	c	d	e
	(v)	(vi)	(i)	(ii)	(iv)

C.	a	b	c	d	e
	(ii)	(iii)	(iv)	(i)	(v)

D.	a	b	c	d	e
	(ii)	(iv)	(v)	(iii)	(i)

30. Generally speaking

A. $\frac{\text{Distance}}{|\text{Displacement}|} < 1$

B. $\frac{\text{Distance}}{|\text{Displacement}|} = 1$

C. $\frac{\text{Distance}}{|\text{Displacement}|} \leq 1$

D. $\frac{\text{Distance}}{|\text{Displacement}|} \geq 1$

31. A ball is dropped on to the floor from a height of 10 m. It rebounds to a height of 2.5 m. If the ball is in contact with the floor for 0.01 seconds, what is the average acceleration during contact?

A. 1400 m/s^2
B. 2100 m/s^2
C. 700 m/s^2
D. 2800 m/s^2

32. Read the given statements and mark the correct option.
Statement 1: The distance x in which a car can be stopped depends on he initial velocity.
Statement 2 : Change in mass has no role to play

A. Both statement 1 and statement 2 are true and statement 2 is the correct explanation of statement 1
B. Both statement 1 and statement 2 are true but statement 2 is not the correct explanation of statement 1
C. Statement 1 is true but statement 2 is false
D. Statement 1 is false but statement 1 is true

33. The S.I. unit of weight is

A. Newton
B. Newton m
C. Newton/sec
D. Newton m/s

34. If a constant force acts on a body initially at rest, the distance moved by the body in time t is proportional to

A. t
B. t^2
C. t^3
D. t^4

35. Which equation defines Newton's Second law of motion?

A. $F = ma = \frac{dp}{dt}$
B. $F = m\frac{da}{dt} = p$
C. $\frac{df}{dt} = ma = p$
D. F = ma = p

36. Weight of the object is

A. More at the equator and less at poles
B. More at poles and less at equator
C. Same at poles and equator
D. Depend on Mass of the object

37. Read the given statements and mark the correct option.
Statement 1 : Earth has an atomsphere but the moon does not.
Statement 2: Moon is very small in comparison to earth

A. Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1
B. Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1
C. Statement 1 is true but statement 2 is false
D. Both statements 1 and 2 are false

38. Read the passage carefully and answer
A car of mass 2,000 kg is lifted up a distance of 30 m by a crane in 1 minute. A second crane does the same job in two minutes. The power supplied by first crane is

A. 4800W
B. 9800W
C. 19.6kW
D. 980W

39. Read the passage carefully and answer
A toy rocket of mass 0.1 kg has a small fuel of mass 0.02 kg which it burns in 3 s. Starting from rest on the horizontal smooth track it gets a speed of 20 m S^{-1}after the fuel is burned out

What is the energy content per unit mass of fuel?

A. 1000 J kg^{-1}
B. 500 J kg^{-1}
C. 6000 J kg^{-1}
D. 700 J kg^{-1}

40. A source of wave produces 3 crests and 3 troughs in 2 ms, the frequency of the wave is

A. 1.5Hz
B. 1 Hz
C. 3 kHz
D. 1.25 kHz

41. A shrill sound has a _____ pitch and dull sound ha a _____ pitch

A. High, low
B. Low, high
C. Low, low
D. High, high

42. Which of the following is the place of Infection of virus causing Japanese encephalitis, inside the human body?

A. Lungs
B. Brain
C. Liver
D. Gut

43. Making anti-viral drugs is more difficult than making anti-bacterial medicines because

A. Viruses make use of host machinery
B. Viruses are on the border line of living and non-living
C. Viruses have very few biochemical mechanisms of their own
D. Viruses have a protein coat

44. AIDS is caused by

A. Bacteria
B. Virus
C. Protozoa
D. Fungi

45. Which step is not involved in the carbon cycle?

A. Photosynthesis
B. Transpiration
C. Respiration
D. Burning of fossil fuels

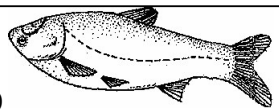
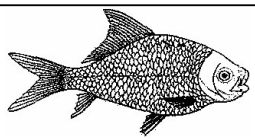
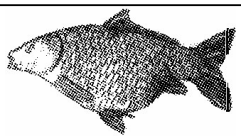
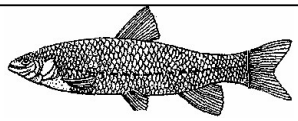
46. The fertility of soil is lost due to

A. Afforestation
B. crop rotation
C. Soil erosion
D. strip cropping

47. The atmosphere on Venus and Mars is different from the atmosphere of Earth because

A. Nitrogen is the major component of their atmosphere
B. Carbon dioxide is the major component of their atmosphere
C. Living organisms are known to exist there
D. None of the above

48. Match column I with column II and select the correct from the codes given below.

Column I	Column II
(a) Catla catla	(i) 
(b) Common carp	(ii) 
(c) Grass carp	(iii) 
(d) Silver carp	(iv) 

A. a	b	c	d
(i)	(ii)	(iii)	(iv)

B. a	b	c	d
(ii)	(iii)	(iv)	(i)

C. a	b	c	d
(iv)	(iii)	(ii)	(i)

D. a	b	c	d
(ii)	(iii)	(i)	(iv)

49. Read the following paragraph carefully and fill Up the blanks with correct option.
Born on 26th November, 1921, _____ is called the Architect of lndia's Modern Dairy Industry and the Father of _____ Revolution. He is the founder chairman of the National Dairy Development Board (NDDB). NDDB designed and implemented the world's largest dairy development programme, called _____

A. Dr. V. Kurien, Green, Organic production
B. Dr. C.L.A. Laveran, Blue, Phyto-enrichment
C. Dr. V. Kurien, White, Operation flood
D. Dr. Allen Porter, Silver, Operation flood

50. Some species of fishes can be cultured in a single fish pond. These fishes do not compete for food as they have different food habits. In the following columns fishes are matched according to their food habits. Select the incorrect match

A. Labeo rohita - Column feeder
B. Catla catla - Surface feeder
C. Cirrhinus mrigala - Bottom feeder
D. Common carp - Surface feeder