**Time – 90 Mins                   Marks -100**

1. The work done in moving 10 lithium nuclei (Atomic number of Li = 3) through a potential difference of 10 V is (charge on an electron is 1.6 x $10^{-19}$C)

(1) 4.8 x $10^{-16}$ J          (2) 4.8 x $10^{-19}$J
(3) 4.8 x $10^{-18}$J          (4) 4.8 x $10^{-17}$J

2. Choose the correct alternative which matches second and third column with first column

| | Column I | | Column II | | Column III |
|---|---|---|---|---|---|
| (I) | Magnetic field is produced near current carrying conductor | (A) | right hand thumb rule | (a) | Michael Faraday |
| (II) | Electric current is generated in a conductor moving in a magnetic field | (B) | Fleming's right hand rule | (b) | Hans Oersted |

(1) (I) - (B) - (a), (II) - (B) - (b)
(2) (I) - (A) - (b), (II) - (B) - (B)
(3) (I) - (B) - (b), (II) - (A) - (a)
(4) (I) - (A) - (b), (II) - (B) - (a)

3. M.R.I is based on.......
(1) Magnetic effect of electric current
(2) Heating effect of electric current
(3) Chemical effect of electric current
(4) Conduction of electric current

4. For retraction of light form air to rock salt, water and diamond if:
V - Velocity of light in air
$V_1$ - Velocity of light in rock salt
$V_2$ - Velocity of light in water
$V_3$ - Velocity of light in diamond, then
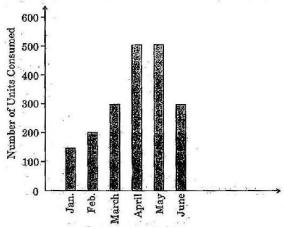Choose the correct alternative
(1) $V_3 > V, > V_2 > V$
(2) $V > V_2 > V_1 > V_3$
(3) $V > V_1 > V_2 > V_3$
(4) $V_1 > V > V_3 > V_2$

5. When white light is passed through and upside down (inverted) prism then
(1) White light is obtained
(2) Spectrum is obtained with violet colour undergoing maximum deviation and red colour undergoing minimum deviation.
(3) Spectrum is obtained with red colour undergoing maximum deviation and violet colour undergoing minimum deviation.
(4) light gets blocked

6. Select the correct sequences of light entering the different parts of human eye.
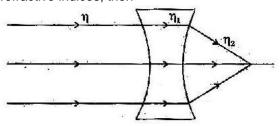(1) cornea, lens, iris, pupil, retina
(2) pupil, cornea, iris, lens, retina
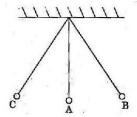(3) cornea, pupil, iris, lens, retina
(4) cornea, iris, pupil, lens, retina

7. Graph shows the numbers of units consumed by a family for six months. Find the cost of energy of four months form march to June if M.S.E.B increased its unit rate from Rs. 3.50 to Rs. 4.50 for april and may and again decreased by Rs.2 for June.



(1) Rs. 6000          (2) Rs.6030
(3) Rs.6300          (4) Rs.6200

8. Object placed ...... of lens or mirror give infinite magnification
(1) at focus                (2) at infinite distance
(3) between $F_1$ and $2F_1$      (4) at $2F_1$

9. If a 3 cm tall object places perpendicular to principle axis of a convex lens of focal length 15 cm produces a real in inverted image of height 15 cm. then its object distance (u) is ...... and image distance (v) is......
(1) u = - 18m , v = + 90 m
(2) u = + 18 cm, v = - 90 cm
(3) u = - 18cm , v- + 90 cm
(4) u = = + 18 cm, v = + 90 cm

10. If the path of parallel light through a concave lens is as shown in the figure where $\eta, \eta_1, \eta_2$ are refractive indices, then



(1) $\eta > \eta_1 = \eta_2$          (2) $\eta = \eta_1 < \eta_2$

(3) $\eta = \eta_1 > \eta_2$      (4) $\eta < \eta_1 = \eta_2$

11. Distance covered by an object thrown upward in the last second.....
(1) depends on initial velocity
(2) depends on mass
(3) depends on air velocity
(4) is always same

12. In motion of a simple pendulum acceleration and kinetic energy are maximum.......



(1) C, B, A      (2) A, B, C
(3) A only      (4) B, C only

13. A washing machine rate 300 W is operated one and half an hour/day. If the cost of unit is Rs.3.50, find the cost of energy to operate a washing machine for the month of September
(1) Rs.27.90      (2) Rs.35.25
(3) Rs.47.25      (4) Rs.55.90

14. Elements A, B, C, D have atomic numbers as 35, 19, 17, 9 respectively. Choose the odd element.
(1) A      (2) B      (3) C      (4) D

15. The elements P, Q, R, S belong to the group number 14, 15, 16, 17 respectively. Select the elements in increasing order of their electronegativity
(1) P < Q < R < S      (2) P > Q > R > S
(3) R < Q < P < S      (4) Q < P < S < R

16. For the following reaction which statement is true?
$2H_2S(g) + SO_2(g) \rightarrow 3S(s) + 2H_2O(l)$
(a) $H_2S$ is reduced      (b) $SO_2$ is oxidised
(c) $H_3S$ is reducing agent
(d) $SO_2$ is oxidising agent
(1) (a) and (c)      (2) (b) and (c) (3) (a) and (b)      (4) (c) and (d)

17. A science teacher wrote 3 statement about rancidity
(i) When fats and oils are reduced, they become rancid
(ii) in chips packet, rancidity is prevented by oxygen
(iii) rancidity is prevented by adding antioxidants
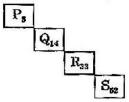Select the correct option:
(1) (i)      (2) (ii) and (iii)
(3) (iii)      (4) (i), (ii) and (iii)

18. The gas evolved during the reaction of $CuCl_2$ and cone. $H_3SO_4$ is..........
(1) Neutral      (2) basic
(3) Highly basic      (4) Acidic

19. Which of the following substance has the lowest pH - Value?
(1) Tomato Juice      (2) Vinegar
(3) Washing soda      (4) Human blood

20. Which of the following is most reactive metal?
(1) Fe      (2) Zn      (3) Ca      (4) Al

21. In the given square P, Q, R, S with atomic number is written are metalloids. About this the 4 statements are given below. Select the correct option of the true statements:



(a) Element after square P is a non-metal
(b) Square R represents metalloid
(c) Element just before square R is a metalloid
(d) Element just before square S is a non-metal (1) (a), (b) and (c)      (2) (a), (b) and (d)
(3) (b) and (c)      (4) (a), (b), (c) and (d)

22. In the following structural formulae one IUPAC name is incorrect. Identify it:



(1) $CH_3-CH_2-C-CH_3$-Butanone
(2) $CH_3-CH_2-\overset{H}{\underset{|}{C}}=O$-Propanal
(3) $CH_3-CH_2-C-OH$-Ethanoic acid
(4) $CH_3-CH_2-CH_2-CH_2-OH$-Butanol

23. Select a compound which gives effervescence with $NaHCO_3$ solution:
(1) $C_2H_6O$      (2) $C_2H4O_2$
(3) $C_2H_4O$      (4) $C_3H_aO$

24. What is the IUPAC name of the following compounds?



(1) 4-Ethyl-3, 3-dichloro heptane
(2) 4-Ethyl-3, 3-dichloro hexane
(3) 4-Ethyl-3-chlorohexane
(4) 3, 3-dichloro-4-butyl heptane

25. X and Y are the two atomic species:

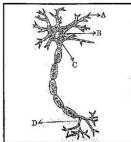| | X | Y |
|---|---|---|
| Number of Proton | 8 | 8 |
| Number of Neutron | 8 | 10 |

Select the correct statement about X and Y:
(1) X and Y are isobars
(2) X and Y have different chemical properties
(3) X and Y have different physical properties
(4) X and Y are the atoms of different elements

26. How many electrons are present in M-shell of an element with Atomic number 20?
(1) 8    (2) 6    (3) 18    (4) 2

27. Which of the following harmful products is not produced in the biochemical reactions ot the cell of living organisms?
(1) Urea      (2) Uric acid
(3) Ammonia      (4) Lymph

28. Match the following components of Column 'A' with the components of Column 'B':

| Column 'A' | Column 'B' |
|---|---|
| (1) Venus flytrap | (A) A trap which looks and smells like a flower to catch the insects. |
| (2) Balsam | (B) Flower opens in the morning. |
| (3) Drosera | (C) Fruit bursts open to scatter the seeds |
| (4) Lotus | (D) Tentacles on the leaves to trap the insects |

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

29. Select the correct sequence of the steps of human nutrition:-
(1) Ingestion -> Digestion -> Absorption -> Assimilation -> Egestion
(2) Ingestion -> Digestion -> Assimilation -> Absorption -> Egestion
(3) Ingestion -> Assimilation -> Digestion -> Absorption -> Egestion
(4) Ingestion -> Absorption -> Digestion -> Assimilation -> Egestion

30. Where the environmental information is picked in the neuron?



(1) A    (2) B    (3) C    (4) D

31. Which plant hormone is found in greater concentration in fruits and seeds?
(1) Auxins      (2) Gibberellins
(3) Cytokinins      (4) Abscisic acid

32. Identify the wrong pair from the following:
(1) Euglena - Binary fission
(2) Yeast - Budding
(3) Spirogyra-Fragmentation
(4) Hydra-Multiple fission

33. How many male gametes are essential to Form 25 seeds in Angiospermic plants?
(1) 25    (2) 50    (3) 75    (4) 100

34. A basic process in reproduction is the creation of a........... copy.
(1) RNA      (2) DMA
(3) Nucleus      (4) Mitochondria

35. Identity a fish who breathes air through its lungs:
(1) Lungtish      (2) Rohu      (3) Dogtish      (4) Sting Ray

36. A pea plant with yellow and round seeds (YYRR) is crossed with a pea plant having green and wrinkled (yyrr) seeds, then in E, generation of this dihybrid cross 320 plants are produced. Out of which 180 plants have same phenotypic characters. Identity this phenotype.
(1) Yellow and wrinkled seeds
(2) Yellow and round seeds
(3) Green and round seeds
(4) Green and wrinkled seeds

37. Which gas emits on burning of rice straw?
(1) $SO_2$    (2) $NH_3$    (3) $O_3$    (4) $H_2S$

38. It biomedical waste not handled properly, then which disease is a potent source in human being?
(1) Cancer      (2) Heart diseases
(3) AIDS      (4) Leprosy

39. Which category lies in between the genus and order in the classitication of plants?
(1) Species      (2) Class
(3) Family      (4) Kingdom

40. Earthworm, a friend of farmer belongs to........... phylum.
(1) Arthropoda      (2) Echinodermata
(3) Mollusca      (4) Annelida

41. Identify incorrect sentence related to Asian continent:
(1) This continent is the biggest of all from the perspectives of area and population
(2) The continent got the name from the word 'Aasu'
(3) The renaissance era was started from this continent
(4) The emergence of old religion and culture from this continent

42. Which one of the following atomic reactors is not present in Atomic Research City' at Mumbai?
(1) Apsara      (2) Narora      (3) Zarlina      (4) Purnima

43. Who was the painter of this lamous immortal picture?



(1) Michaelangelo      (2) Lenonardo - da - Vinci
(3) Raphael      (4) Donate

44. Who one of the following was not navigator?
(1) John cabot
(2) John Key
(3) Amerigo Vespucci
(4) Christopher Columbus

45. Arrange the following events in chronological sequence:
(I) Hitler adopted 4th year plan
(II) Hitler assumed the post of prime Minister
(III) Hitler brought out an agreement with Italy and Japan
(IV) Hitler captured the Rhineland
(1) (II), (I), (IV), (III)
(2) (III), (IV), (II), (I)
(3) (I), (III), (II), (IV)
(4) (IV), (II), (I), (III)

46. Choose the inappropriate pair:
(1) Business concessions took from king Zamorin - Vasco - da - Gama
(2) Request to the Japanese Government for business concession - Commodore Perry
(3) The book written by him which was created among the European people - Bartholomew Dia:
(4) Motivated the navigators - King Henry

47. Which one of the following is not computer's input device?
(1) Keyboard
(2) Scanner
(3) Mouse
(4) Printer

48. .............is the first archaic scripture of the Aryans.
(1) Yajurveda
(2) Samveda
(3) Atharvaveda
(4) Rigveda

49. The communist thinker Karl Marx belongs to ............... country.
(1) Russia
(2) France
(3) Germany
(4) Turkistan

50. 'UNO' was founded in...........
(1) New York
(2) Washington
(3) San Francisco
(4) The Hague

51. Due to which action of Japan, the Asian Continent was engulled into the international conflict?
(1) The battle between China and Japan
(2) Japan forced its army into Indo-china region
(3) Japan attacked on pearl Harbour
(4) The rise of Militarism in Japan

52. Tipu Sultan was defected due to collaboration with which rulers?
(1) British - Maratha - Nizam
(2) Nizam - Nawab of Karnataka - British
(3) Maratha - British - Karnataka Nawab
(4) King of Travancore - Maratha - British

53. Who has written the book 'Rights of Man'?
(1) Thomas Jefferson
(2) Thomas Penn
(3) George Washington
(4) Rousseau

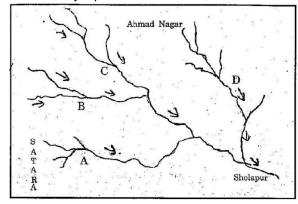54. Atomic energy plant has not been erected at........
(1) Talcher
(2) Jadugad
(3) Tuticorin
(4) Nangal

55. Which nation is not included in the committee, an executive body of the League of Nations?
(1) France
(2) Italy
(3) Soviet Russia
(4) Germany

56. Harl-ke-Rattan National Wetland is situated in ...............state.
(1) West Bengal
(2) Assam
(3) Punjab
(4) Haryana

57. The correct order of central Highlands of the Peninsular Plateau Region from East to West is:
(1) ChotaNagpur -> Baghelkhand -> Bundelkhand -> Malwa Plateau
(2) Baghelkhand -> Bundelkhand -> Malwa Plateau-> Chota Nagpur
(3) Bundelkhand -> Malwa Plateau-> Chota Nagpur-> Baghelkhand
(4) Malwa Plateau-> Chota Nagpur -> Baghelkhand -> Bundelkhand

58. From the physiography point of view which of the following region is situated to the east of Western Ghats known as 'Mukta Maidan?
(1) Palkonda Hills
(2) Biligiri Hills
(3) Nallamalla Hills
(4) Velikonda Hills

59. Which of the following is not included in the Deccan Plateau?
(1) Satpuda - Mahadeo Maikal Range
(2) Karnataka - Telangana Plateau
(3) Malwa Plateau
(4) Maharashtra Plateau

60. Vegetal cover is thin in Rajasthan Plain Region due to:
(1) Winds blow with high velocity
(2) Very high temperatures
(3) Dry climate
(4) Scanty rainfall

61. Along the shore of the Dal Lake Kashmir............... is cultivated.
(1) Apple
(2) Cherry
(3) Pears
(4) Grapes

62. In the figure given below, which river is indicated by alphabet 'A'?



(1) Man River
(2) Bhima River

(3) Sina River       (4) Nira River

63. Find the wrong pair having place and industry
(1) Durgapur - Iron and Steel Industry
(2) Kanpur-Ship building Industry
(3) Varanasi-Silk Sari
(4) Barauni -Oil Retinery

64. It the countries sharing land border with India are arranged in ascending order ot percentage, which country will be in the middle?
Pakistan, China, Bhutan, Afghanistan, Nepal
(1) Bhutan       (2) Nepal
(3) Pakistan      (4) Afghanistan

65. The eastern district of Maharashtra........ districts have more number of tanks and lakes.
(1) Bhandara and Gondia
(2) Wardha and Nagpur
(3) Chandrapur and Gadchiroli
(4) Bhandara and Chandrapur

66. Which of the following regions is described as 'Cold Desert'?
(1) Sikkim Himalaya  (2) Karakoram Ranges (3) Ladakh Range  (4) Kailas Range

67. Which of the following is known as 'Canebrakes'?
(1) Thick stands of tall grass
(2) Forests with thick and tall trees
(3) Region affected by tropical cyclones
(4) Region affected by floods

68. 'Shilong' belongs to which Subdivision of the Himalaya?
(1) The Central Himalaya
(2) The Kailas Range
(3) The Ladakh Range
(4) The Eastern Himalaya

69. The region of older alluvium of the Ganga plain is known as.........
(1) Khadar       (2) Bhabar
(3) Bangar      (4) Tarai

70. 'Bundelkhand' is situated in which direction in relation to Malwa Plateau?
(1) South-east     (2) South
(3) West       (4) North-east

71. Identify the correct pair of the following

| (i) Indian National Congress | (A) Established in 1980 |
| (ii) Bharatiya Janata Party | (B) Established in 1885 |
| (iii) Communist Party of India | (C) Established in 1999 |
| (iv) Nationalist Congress Party | (D) Established in 1964 |

(1) (i) - (D), (ii) - (C), (iii) - (B), (iv) - (A)
(2) (i) - (C), (ii) - (B), (iii) - (A), (iv) - (D)
(3) (i) - (D), (ii) - (A), (iii) - (C), (iv) - (B)
(4) (i) - (B), (ii) - (A), (iii) - (D), (iv) - (C)

72. Which of the following is not applicable for the Parlimentary Democracy?
(1) Two chief executive
(2) Power vested in Parliament
(3) Executive chief cannot be removed before the end of his tenure
(4) In England and India, Parliament democracy is in existence

73. Who worked as the Chairperson of the Advisory Committee on fundamental rights of the Constituent Assembly?
(1) Vallabhbhai Patel
(2) Pandit Jawaharlal Nehu
(3) Dr. Rajendra Prasad
(4) Dr. Babasaheb Ambedkar

74. Who has written a book called 'Street-purush Tulana' Published in 1882?
(1) Mahatma Phule    (2) Shahu Maharaj
(3) Tarabai Shinde  (4) Savitribai Phule

75. People tend to migrate to more developed regions is an example of which inequality?
(1) Political      (2) Regional
(3) Social       (4) Linguistic

76. ......... refers to various activities related to the production, distribution and consumption of goods and services in a certain Geographical region.
(1) Political Sovereignty (2) Sectoral Distribution
(3) An Economy    (4) Natural Resources

77. Which day of the following is celebrated as Worlds Consumer Day?
(1) $15^{th}$ March     (2) $24^{th}$ December
(3) $10^{th}$ December  (4) $8^{th}$ April

78. "Economic is a science to study human well-being/welfare."Who has defined it?
(1) Prof. Adam Smith  (2) Leonnel Robins  (3) Prof. Kemmerer  (4) Prof. Alfred Marshall

79. On which factor of the following the decision regarding "How much to produce" does not depend upon?
(1) Population growth  (2) Level of production  (3) Size of market  (4) Availability of resources

80. Which is not a fiscal measure of the following to control inflation?
(1) Increase in taxation  (2) Public Borrowings
(3) Overvaluation  (4) Increase in Bank rate

81. In an A.P. the sum of 'n' terms is $5n^2 - 5n$. Find the 10th term of the A.P.?
(1) 80    (2) 90    (3) 100    (4) 110

82. If $\dfrac{a}{x+y} = \dfrac{b}{y+z} = \dfrac{c}{z-x}$, then which of the following equations is true?
(1) a = b + c      (2) c = a + b
(3) b = a x c     (4) b = a + c

83. The difference between the two roots of a quadratic equation is 2 and the difference between

the cubes of the roots is 98, then which of the following is that quadratic equation?

(1) $x^2$ - 8x + 15 = 0      (2) $x^2$ + 8x - 15 = 0 (3) $x^2$ + 5x +15 = 0      (4) $x^2$ - 5x - 15 = 0

84. From a pack of 52 playing cards, face club cards are removed. The remaining cards are well shuffled and a card is drawn at random. Find the probability that the card drawn is a Heart card.
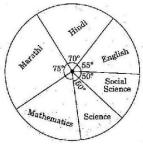
(1) $\dfrac{1}{4}$     (2) $\dfrac{13}{49}$     (3) $\dfrac{3}{52}$     (4) $\dfrac{49}{52}$

85. A boat takes 7 hours to travel 30 km upstream and 28 km downstream. It takes 5 hours to travel 21 km upstream and to return back. Find the speed of the boat in still water.

(1) 10km/hr             (2) 20 km/hr
(3) 14 km/hr        (4) 6 km/hr

86. The marks scored by a student in an examination of 600 marks is shown in the following pie diagram. It he has scored 60 marks in Mathematics, then find the percentage of marks that he secured in the examination.



(1) 60%     (2) 50%     (3) 75%     (4) 55%

87. $\sqrt{m^4 n^4} \times \sqrt[6]{m^2 n^2} \times \sqrt[3]{m^2 n^2} = (mn)^k$, then find the value of k.

(1) 6     (2) 3     (3) 2     (4) 1

88. The cost of 20 guavas and 5 apples is same as that of 12 guavas and 7 apples, then how many times the cost of an apple is to that of a guava?

(1) two times           (2) half times
(3) four times      (4) five times

89. In a group of students, 10% students scored marks less than 20, 20% students scored marks between 20 to 40, 35% students scored marks between 40 to 60 and 20% students scored marks between 60 to 80. Remaining 30 students scored marks between 80 to 100. Find the mode of marks.

(1) 30     (2) 50     (3) 60     (4) 70

90. One of the root of a quadratic equation is $(3 - \sqrt{2})$, then which of the following is that equation?

(1) ($x^2$ - 6x - 7) = 0      (2) ($x^2$ + 6x - 7) = 0 (3) ($x^2$ + 6x + 7) = 0      (4) ($x^2$ - 6x + 7) = 0

91. In A ABC, m$\angle$B = 90°, AB - $4\sqrt{5}$. BD $\perp$ AC, AD = 4, then A( $\triangle$ABC)=?

(1) 96 sq. units      (2) 80 sq. units      (3) 120 sq. units      (4) 160 sq. units

92. Side of a cube is increased by 50%, then what percent increase will be in the area of the vertical faces of the cube?

(1) 125%    (2) 150%    (3) 100%     (4) 50%

93. sin x = $\dfrac{6 sin 30° - 8 cos 60° + 2 \tan 45^0}{2(sin^2 30° + cos^2 60°)}$ , than x = how much?
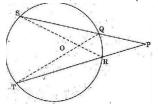
(1) $30^0$     (2) $45^0$     (3) $60^0$     (4) $90^0$

94. P = (1, -9), Q = (2, 5) and R = (6, 7) are the co-ordinates of the vertices of $\triangle$PQR, then find the coordinates of the centroid from the following alternatives given :

(1) $\left(\dfrac{10}{3}, \dfrac{-17}{3}\right)$             (2) (1, 3)
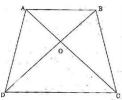
(3) (3, 1)            (4) (-3, 1)

95. In the following figure secants OS and TR intersect each other at point P, which is outside the circle. O is the point of intersection of chords SR and TO. If OS = 5 cm, OT = 10 cm, TR = 12 cm, PR = 8 cm, then find l(PQ)



(1) 6 cm     (2) 10cm     (3) 12cm     (4) 16cm

96. In the following figure, seg AB || seg CD. Diagonals AC and BD intersect at point 0. If AO: OC - 1 : 3, then $\dfrac{A(\triangle AOB)}{A(\triangle ABD)} = ?$



(1) $\dfrac{1}{4}$     (2) $\dfrac{1}{9}$     (3) 16     (4) 116

97. In $\triangle$ABC points P and 0 trisect side AB, points T and U trisect side AC and points R and S trisect side BC. Then perimeter of hexagon PQRSTU is how many times of the perimeter of $\triangle$ABC?

(1) $\dfrac{1}{3}$ times            (2) $\dfrac{2}{3}$ times

(3) $\dfrac{1}{6}$ times            (4) $\dfrac{1}{2}$ times

98. $\dfrac{\sin^4\theta - \cos^4\theta}{1 - \sin^2\theta}$ = how much>

(1) $1 - \cot^2\theta$        (2) $1 - \tan^2\theta$

(3) $\tan^2\theta - 1$        (4) $\cot^2\theta - 1$

99. The radius of a cylindrical vessel is 7 cm and its height is 12 cm. $\dfrac{2}{3}$ of the vessel is filled with water.

A sphere having radius 6 cm is dropped into the water. Find the volume of the water that will come out of the vessel.
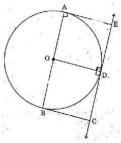
(1) 196 $\pi$ cm$^3$            (2) 92 $\pi$ cm$^3$

(3) 288 $\pi$ cm$^3$            (4) 588 $\pi$ cm$^3$

100. Radius of a circle with centre '0' is $4\sqrt{5}cm$.

AB is the diameter of the circle AE $\parallel$ BC = 8cm. Line EC is tangent to the circle at point D. Find the length of DE.



(1) $4\sqrt{5}cm$            (2) $6\sqrt{5}cm$

(3) 8 cm            (4) 10 cm

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