

# UANM AZA I Mathematics Question paper Model I

- 1) **UANM AZA I** **Mathematics Question paper Model I**  
 Union of sets is distributive over intersection is represented by  
 A)  $(A \cup B) \cap (A \cup C)$     B)  $(A \cup B) \cap (A \cap C)$     C)  $(A \cup B) \cap (B \cup C)$     D)  $(A \cap B) \cup (A \cap C)$
- 2) **AP** **Y** **A** **N** **A** **E** **A** **N** **D** **D** **V** **g** **A** **P** **A** **A** **V** **g** **A** **P** **A** **A** **E** **A** **N** **Y**  
 The general form of AP with first term 'a' and common difference 'd' is  
 A)  $a, a - d, a + d, \dots$     B)  $a, ad, 2ad, \dots$   
 C)  $a, a+d, a+2d, \dots$     D)  $a, ad, ad^2, \dots$
- 3) **MAZA** **P** **A** **G** **A** **Y** **Z** **R** **E** **A** **O** **H** **A** **I** **G** **A** **Y** **g** **b** **P** **P** **A** **Q** **Z** **A** **U** **M** **I** **4950** **P**  
**P** **A** **P** **A** **U** **M** **Z** **g** **P** **A** **G** **A** **Y** **Z** **R** **E** **O** **A** **d** **z** **b** **A** **S** **I**  
 In a function people greet themselves with shake hands. If the number of shake hands is 4950, then people present there are -----  
 A) 120    B) 110    C) 100    D) 90
- 4) **J** **g** **b** **A** **Y** **E** **u** **A** **O** **A** **P** **U** **M** **A** **Y** **C** **a** **A** **Y** **A** **C** **Z** **A** **J** **A** **I** **g** **T** **E** **C** **a** **U** **M** **A** **Y** **T** **R** **S** **I** **128** **D** **z** **b** **A** **C** **a** **A** **N** **U**  
**R** **A** **C** **a** **A** **P** **A** **A** **V**  
 The LCM Of two numbers is 8 times their HCF. If their product is 128 then HCF and LCM are  
 A) 2, 16    B) 3, 18    C) 4, 32    D) 5, 40
- 5) **F** **P** **A** **N** **E** **P** **U** **M** **R** **e** **A** **i** **A** **a** **A** **z** **A** **A** **A** **U** **P** **A** **E** **C** **,** **M**?  
 Which one of the following is incorrect ?  
 A)  $\frac{H}{B} = \frac{A}{L}$     B)  $\frac{L}{A} = \frac{B}{H}$     C)  $\frac{A}{L} = \frac{H}{B}$     D)  $\frac{A}{L} = \frac{B}{H}$
- 6)  $p^2 + q^2 + r^2 - pq - qr - pr$  **E** **A** **P** **A** **V** **A** **S** **Y** **A** **S** **g** **f** **A** **U** **A**  
 When  $p^2 + q^2 + r^2 - pq - qr - pr$  is written using  $\Sigma$  notation we get -----  
 A)  $\Sigma p^2 - pq$     B)  $p^2 + \Sigma pq$     C)  $\Sigma p(p - q)$     D)  $\Sigma q(p - q)$
- 7)  $a + b + c = 2s$  **D** **A** **U** **A** **a** **+ b - c** **A** **Y** **E** **E**  
 If  $a + b + c = 2s$  then the value of  $a + b - c$  is  
 A) 0    B)  $2s$     C)  $2s - c$     D)  $2(s - c)$
- 8) **E** **a** **A** **U** **A** **A** **o** **e** **C** **v** **A** **A** **V** **A** **z** **E** **q** **A** **A** **A** **\_\_\_\_\_**  
 Which one among these is the biggest ?  
 A)  $\sqrt{3}$     B)  $\sqrt[3]{3}$     C)  $\sqrt[4]{10}$     D)  $\sqrt{2}$

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9)  $K = \frac{1}{2} mv^2$  DzAUÀ ' v ' AÀA ' E-EAÀAA

If  $K = \frac{1}{2} mv^2$  then the value of 'v' is

A)  $\pm \sqrt{\frac{K}{2m}}$       B)  $\pm \sqrt{\frac{K}{\frac{1}{2} m}}$       C)  $\pm \sqrt{\frac{2m}{K}}$       D)  $\pm \sqrt{\frac{m}{2K}}$

10)  $ax^2 + bx + c = 0$  AÀA MAZÀÄ ±ÀÄZÀp àUÀØ ,À«ÀÄPÀgÀt àÄzÀUÀ

If  $ax^2 + bx + c = 0$  is a pure quadratic equation, then \_\_\_\_\_

A)  $a = 0$       B)  $b = 0$       C)  $c = 0$       D)  $a + b + c = 0$

11) p & q UÀAA 2a<sup>2</sup> - 4a + 1 = 0 AÀA aÀAE®UÀAÀzÀUÀ (p + q)<sup>2</sup> + 4pq fÀ ' E-E

If p & q are the roots of  $2a^2 - 4a + 1 = 0$ , then the value of  $(p + q)^2 + 4pq$  is

A) 2      B) 4      C) 6      D) 8

12)  $5x^2 + 13x + k = 0$  AÀA MAZÀÄ aÀAE®aÀ EEEERAZÀgÀ aÀvÀpÀpÈ ,aÀAEAVzÀyÈ ' k ' AÀ ' E-E

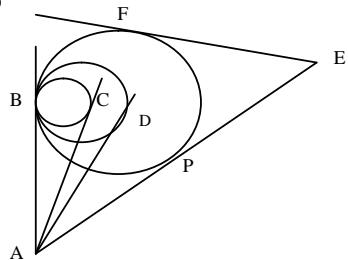
If one root of  $5x^2 + 13x + k = 0$  is equal to the reciprocal of the other, then the value of 'k' is

A) 0      B) -6      C) 5      D) 6

13) avÀzÀ° fÀ ,ÀaÀ ,ÀzÀpÀUÀAA

In the figure equal tangents are

A) AP & AE      B) AD & AE  
C) AC & AP      D) AB & AE



14) 1.4 «À JvÀgÀ«gÀa aÀqÀUÀfÀ fÈgÀ½fÀ GzÀ1.2 «À EzÈ. CzÈ ,ÀaÀAAzÀ° eMOzÀÄ pÀI qÀzÀ fÈgÀAA 5.4 «À GzÀkzÀyÈ D pÀI qÀzÀ JvÀgÀAA

If the shadow of a boy with height 1.4 m is 1.2m then the height of a building which cast a shadow of 5.4 m at the same time is

A) 6.1 m      B) 6.3 m      C) 7 m      D) 6 m

15) 6 ,ÉA.«À, 8 ,ÉA.«À, 10 ,ÉA.«À Äå ,À aÀvÀÄ A, B & C pÉAAzÀgÀa aÀAEgÀ aÀvÀUÀAA yÀgÀ ,ÀgÀ ' ÁoÀaÀAV ,ÀpÒ ,ÀvÀzÈ ,ÀUÀzÀgÈ ΔABC AÀ ,ÀvÀUÀV

If three circles of diameter 6cm, 8cm & 10 cm with centres A, B & C touch externally. Then the perimeter of the  $\Delta ABC$  obtained by joining these points is

A) 12cm      B) 24cm      C) 36cm      D) 48cm

16) MAZÀÄ aÀvÀzÀ aÀ ,À aÀvÀÄ aÀvÀpÀ ,ÀUÀAA fÀqÀÄ aÉ 1 À«ÀvÀÄzÀ pÉAvÀAA

The space between Diameter and arc of a circle is

A) aÀvÀUÀRaqÀ      B) ®WÀÄ aÀvÀUÀRaqÀ      C) CCPÀ aÀvÀUÀRaqÀ      D) CzÀdÀ aÀvÀUÀRaqÀ  
A) Segment      B) Minor segment      C) Major segment      D) Semi segment

17) MAZÀÄ ,ÀA ' APÈwÀAA L ,ÀQÀaÀiÀ pÀI fÀ JvÀgÀ 4 n.ø.me . ഖദർ ഒദയൻ ഒഴ്സബ്സ്യൂട്ടാദ അസ്റ്റേ ത്രിജ്യവിധവ

Height of a cylindrical ice cream cup is 4cm. If a cone of same radius is used , then its height is

- A)  $\frac{4}{3}$  cm      B) 2cm      C) 8cm      D) 12cm

- 18) MAZÀÄ UÉÆÄVÀZÀ aÆÄ-ÉÆ « 1 Ätõ aÀ 616 ZÀ. ÉA.« ÄÄ oÁUÁZÄGÉ CzÄgÀ aÁå Á

If the surface area of a sphere is 616 sq.cm then its diameter is

- A) 7cm      B) 7.5cm      C) 14cm      D) 14.2cm

- 19) F PÉVÀVÈAÀÀVÀÀ° è Añíá aÀzàä ¥éméæä×pi WAEÁPÀÈwAñá®?

Which one of the following is not a Platonic solid ?






Four numbers are in AP. If their sum is 20 and sum of their squares is 120 then the numbers are

- A) 1,4,7,9      B) 3,5,7,9      C) 2,4,6,8      D) 2,4,8,12

- 21) MAZÄÄ °AgÄvÄpÄ ±ÄrÄnÄ° è  $T_7 = \frac{1}{10}$  &  $T_8 = \frac{1}{15}$  DzÄuÄ T<sub>10</sub> ga °ÉÉ KËÄÄ ?

In an HP if  $T_7 = \frac{1}{10}$  &  $T_8 = \frac{1}{15}$  then find the value of  $T_{10}$ .

- 22)  $A = \begin{bmatrix} 0 & 5 \end{bmatrix}$  ඒවා විශ්චාල නමුවේ මාත්‍රික්‍යාධාර ‘X’ න යේලේ බැවුම්?

If  $A = \begin{Bmatrix} x+1 & 0 \\ 0 & 5 \\ x+1 & 0 \end{Bmatrix}$  is a skew symmetric matrix, then the value of 'x' is

- 23) «ZÀ®EE PÀAqÀÄ» rÀÀÀÀaÀ ,ÀÆvÀæ·ÉoÉ.

Write the formula to find the deviation

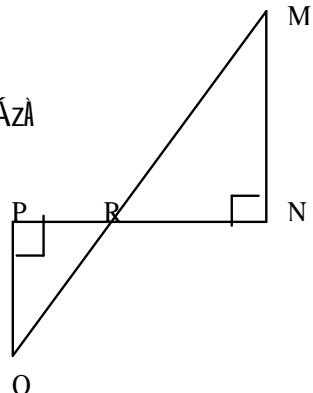
- 24)  $a^2 + a^3 + 1 + a$  **Szézánpéleitől**  
 Ájánlását páránkánál?

The order in which  $2a^2 + a^3 + 1 + a$  is to be written while calculating HCF is

- 25) avrà  $\angle PQR = \angle NMR$  Dz. A.  $\angle$

C€ÀÄÀÆ¥À .. Á°ÀÄÙÀ½À C€ÀÄ¥ÁvÀ SqÉ.

If then write the ratio between its corresponding sides.



- 26)  $\triangle ABC$   $\angle A = 34.5^\circ$ ,  $\angle B = 90^\circ$ .  $DVz$  « $PAT$ ».

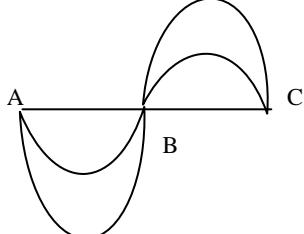
If the sides of a triangle  $\triangle ABC$  are 3, 4, 5 with  $\angle B = 90^\circ$ , then its hypotenuse is -

- 27) A BCD ජැවා මේඛනය සඳහා පෙන්වනු ලබයි. පෙන්වනු ලබයි. AB = 8cm & CD = 5cm  
Dzැක් අඩු + BC යුතු සේල් බසු?

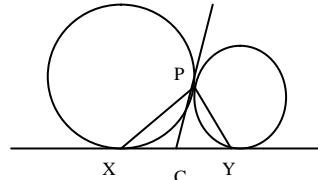
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- The sides of a quadrilateral ABCD are the tangents to a circle with centre O. If AB = 8cm and CD = 5cm then find AD + BC
- 28) වෙළා h අවංශ ජ්‍යා ර පෙර ඒවා තුනක් සඳහා පෙන්වනු?
- write the formula to find the volume of a cone with radius 'h' and height 'r'
- 29)  $\langle \rangle^1 \text{, } \text{APPE} |^1 : \Sigma x^2 + 2 \Sigma yz$   
Expand and simplify :  $\Sigma x^2 + 2 \Sigma yz$
- 30)  $A = \begin{pmatrix} 3 & 4 \\ 5 & 6 \end{pmatrix}$  අවංශ B =  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$  DzAU A + 2B PAAqAA » r.  
If A =  $\begin{pmatrix} 3 & 4 \\ 5 & 6 \end{pmatrix}$  and B =  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$  then find A + 2B
- 31) 60 හෝ මැයි දූනා ඇත්තේ 48 හෝ මැයි දූනා බේඟා ආරෝධ ඇත්තේ 27 හෝ මැයි දූනා ආරෝධ ඇත්තේ. එමෙහි කේලවරු එරಡා පෙන්වනු ඇතුළතුරු. නොදාර් තුළු පාලා මාත්‍ර පෙන්වර නොදාර් නොදාර් ඇතුළු?  
Among 60 students 48 play throw ball and 27 play volleyball. If some of them play both, find the number of students who play only throw ball.
- 32)  $U = \{0, 1, 2, 3, 4, 5, 6, 7, 8\}$  A = {2 ගා මුද්‍රා පාඨාවා } B = {3 ගා C මුද්‍රා පාඨාවා } DzAU (AUB)<sup>1</sup> PAAqAA » r  
If U = {0, 1, 2, 3, 4, 5, 6, 7, 8} A = {Multiples of 2} B = {factors of 6} Then find (AUB)<sup>1</sup> and represent it in Venn diagram.
- 33) ආනා පාඨාවා ප්‍රථම මුද්‍රා 3 ඇත්තා 18 මුද්‍රා 7 ඇත්තා 30 DzAU 17 මුද්‍රා ආවුරුදු PAAqAA » r.  
If the third term and seventh term of an AP are 18 & 30. Find the sum of 17 terms.
- 34) ජාගා මැසේ මැයි ආනා පාඨාවා ආනා පාඨාවා 5 මුද්‍රා මැසේ මැයි ආනා පාඨාවා ආනා පාඨාවා 4 DzAU D මැසේ මැයි ආනා පාඨාවා?  
If the AM and GM of two numbers are 5 and 4. Find the numbers
- 35)  $\begin{pmatrix} 1 & 2 \\ 2 & 5 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$  DzAU x & y ඇත්තා PAAqAA » r.  
If  $\begin{pmatrix} 1 & 2 \\ 2 & 5 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$  then find the value of x & y
- 36) MAZÄ GzAOgAuEAÄA ආමේර්පා  ${}^nC_r = {}^nC_{n-r}$  JAZÄ බේඟා  
With an example show that  ${}^nC_r = {}^nC_{n-r}$
- 37)  $\text{APPE} |^1 : \sqrt{50} - \sqrt{98} + \sqrt{162}$   
Simplify :  $\sqrt{50} - \sqrt{98} + \sqrt{162}$
- 38) bEzÄ CPAGtÄPAj<sup>1</sup> .  $\text{APPE} |^1 : \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$   
Rationalize the denominator and simplify:  $\frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$

- 39)  $(x+6)(x+2)=x$  DzUA  $\text{A} \ll \text{AAPAGATZA} \text{ AAE}^{\circ} \text{UAVAEAB PAAqAA} \gg r \rightarrow \bar{A}$ .  
Find the roots of the equation ;  $(x+6)(x+2)=x$
- 40) 240 Q. «AA zAEgA YAAATAA MAZAA aAOAEAA vEZEAPAEVAA PA^R^A CzAA vAEAB AEUAAAEAB 2 Q. «AA /  
ದಂಬ ಯಷ್ಟು ಹೆಚ್ಚಿನಕೆಂಡಾದ ಅಧರದಂಬ ಕಡಿಮೆಯಾದುತ್ತಿತ್ತು? ಹಾದಾದರೆ ಆ ವಾಹನದ ಪೆದವೆಷ್ಟು?  
If a vehicle increases its speed by 2km/h to its initial speed, it will take half an hour less to travel a distance of 240km. Find its speed.
- 41)  $x^2 + 9 = mx$  EA aAAE^{\circ} UAA YAgAA, AA aAAE^{\circ} AzA 'm' EA 'E-E PAAqAA »r.  
If the roots of  $x^2 + 9 = mx$  are equal, find the value of 'm'
- 42) aAAE^{\circ} UAA (  $3 + 2\sqrt{5}$  ) &  $(3 - 2\sqrt{5})$  DVgAA aAUAD  $\text{A} \ll \text{AAPAGAT gAA}^1 \gg$ .  
Construct an quadratic equation with roots  $(3 + 2\sqrt{5})$  &  $(3 - 2\sqrt{5})$
- 43)  $Z_4$  ನ ಮೇಲೆ ಮಾಡುಲ್ಯೋ 4 ರ ದುಃಖಾರದ ಕೇಲೆ ಕೊಂಡುಕ್ರಿಯಾಗಿ.  
Construct Cauley's table on  $Z_4$  modulo 4 under multiplication.
- 44) AaOPAUAA EAgAA «EA PEAEAA a 65° EgAA aAV 3 EA. «AA welaAMAI aEVAPAEI AA o AzAA «AzAA  
AaOPAUAAEAB J1E → A. .  
Construct two tangents to a circle of radius 3cm from an external point with an angle 65° between them.
- 45) 35 EA. «AA JvAA «gAA a 1° AgAA DPAAWAA YAvAA a 11° AI gi °A^R^B vAAAS^AVzE. F YAvAA  
AA, PAAqAA »r → A. .  
A cylinder of height 35cm is completely filled with 11 litres of milk. Calculate its diameter.
- 46) AEPAA YAAAT DAEE AAEr EAPEe J1E → A. .  
Draw the outline using suitable scale :  
To C in meters  
250  
To D 120 210  
120 200 to B  
To E 80 80  
From A
- 
- 47) F PEVAE EAPEAE DAAGAE AAEvAA CEE → A 1 vAAE EA. .  
YAAAEAEZAA AA YAvAA ©AzAA «EA aAUAD w1/2 1  
Apply Euler's formula to given figure. Write the order of each node.
- 48) F aAVAPAEAA eA APAAWAA V AEA 1.  
Draw the network of given matrix.
- |   |   |   |
|---|---|---|
| 0 | 3 | 0 |
| 3 | 0 | 2 |
| 0 | 2 | 0 |

## UNIT I

- 49) MOBILE പദദ അക്കുർത്താംഡ് എല്ലു പദത്തിന്നു രജിസ്റ്റ് ചെയ്യുന്നതിനു ശുപാൻ ആണീ? അവർത്തല എല്ലു പദത്തിൽ  
 , AgAPAgAUAzA DgAA .. AUAEVAAAABE?  
 How many words can be formed using the letters of the word MOBILE ? How many of them begins with vowels ?
- 50) F PÉVÉA 2 AVOPAVÉ VÁVÁVAPAVÁV A MÁFAPÁ «ZÁ®EE PAAqAA»r → Aj .  
 Calculate the standard deviation of following data.
- |                             |       |        |         |         |
|-----------------------------|-------|--------|---------|---------|
| <sup>a</sup> AVÁDAvAgA (CI) | 1 - 5 | 6 - 10 | 11 - 15 | 16 - 20 |
| D <sup>a</sup> EWU( f )     | 1     | 2      | 3       | 4       |
- 51) 2EEA WAvAzA JgAgAA ©AEÉEÁQQUAA <sup>a</sup>AA, AC <sup>a</sup>AAvAA®, AC UAvAA PAAvAA AV (a - 3) & (a<sup>3</sup> + a<sup>2</sup> - 17a + 15) DV<sup>a</sup>E. D JgAgAEÉ WAvAzA ©AEÉEÁQQUAAEAA PAAqAA»r → Aj .  
 The HCF & LCM of two 2nd degree expressions are (a - 3) & (a<sup>3</sup> + a<sup>2</sup> - 17a + 15). Find the expressions.
- 52)  $x + \frac{1}{x} = \sqrt{3}$  DzAvAA  $x^3 + \frac{1}{x^3}$  EE PAAqAA»r → Aj  
 If  $x$  then find the value of
- 53) MSa <sup>a</sup>AAQAA vAvAgAA, AAACAzA 8 Q. «AA GvAPé ZA° 1 C° AzA ¥AAEaAOPEI wgaAV 5 Q. «AA EAgézAA <sup>a</sup>AAvEAEEAa JqAPé wgaAV 4 Q. «AA EAgézAA EAAvAgA ¥AAEa: JqAPé 10 Q. «AA EAgézAgE C<sup>a</sup>AEEA oEAgA  
 സൗഖ്യം തുറന്നു വരുവാൻ കഴിയുന്ന ദൂരം വേണ്ടും?
- A man walks 8km due north then 5 km East and turns left then walk 4km and finally turns left and walk 10km. How far is he from starting point ?
- 54) avAzA° eXY & PC UAvAA <sup>a</sup>AEAPé JVEZAA, AAOPAVAA  
 $\angle XPY = 90^\circ$  JAZAA VEAJ 1  
 In the figure, XY & PC are tangents to the circle.  
 Prove that  $\angle XPY = 90^\circ$
- 
- 55) MAZAA UAvAEAvAgA + EArAA <sup>a</sup>EEZAA® <sup>a</sup>AAEgAA ¥AAvAA <sup>a</sup>EEvAPé <sup>a</sup>EEzAA® DgAA ¥AAvAA <sup>a</sup>EEvAPé EgaAA  
 CEAAvAA 125:152 DzAgé, AA<sup>a</sup>AAEAA CEAAvAA PAAqAA ».  
 If the ratio between first three terms and first six terms of GP is 125 : 152. Find the common ratio.
- 56) , AAAGAE ; wAAduAA « 1 At ØuAA CAAUAA CEAgAAEYAA ®A EEAEAWuAA <sup>a</sup>AAduAA CEAAvAAvAA ° gAAvAAE.  
 JOzAA , ACII .  
 Provet that area of similar triangles are proportional to square of their corresponding altitudes.
- 57)  $x^2 + 2x - 3 = 0$ , «AAAPAgATZA FAPé /Draw the graph of :  $x^2 + 2x - 3 = 0$
- 58) PEAAzAAvAA EAgAA«EA CAvAgA 7 EA. «AA °AUAE wAAduAA 4.5 EA. «AA <sup>a</sup>AAvAA 3.5 EA. «AA EgaAA JgAgAA  
 aAvAAvAAUÉ EEEgAA, AA<sup>a</sup>AAEAA, AAOPAVAAEAA PAAqAA »r → Aj .  
 Draw two circles of radii 4.5cm and 3.5cm with their centres 7cm apart. Construct DCT.

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## UAKA AZA II Mathematics Question paper Model II

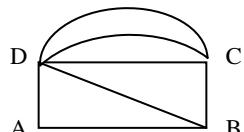
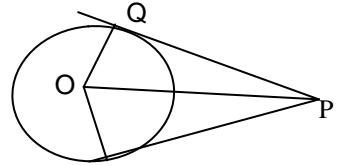
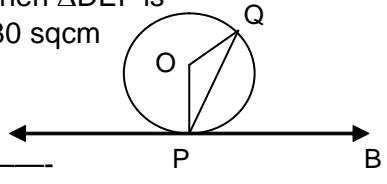
SõAA DAÉA YAAKA:-

1x20

- 1)  $n(A) = 4$  &  $n(A^1) = 8$  DzAgé « MATH ZA° gAA ÁA UAA AUA ÁA , ASéa / If  $n(A) = 4$  &  $n(A^1) = 8$  then  $n(U)$  is  
 A) 4      B) 8      C) 12      D) 16
- 2)  $T_n = 3 \times 4^{n-1}$  DzÁUÀ UAAUÉEÁVÄA ± ÄRÄAA  
 Which one of the following are the terms of  $T_n = 3 \times 4^{n-1}$   
 A) 3,12,18    B) 3,12,48    C) 3,12,24    D) 3,12,26
- 3)  $A = \begin{pmatrix} 1 & 2 & 3 \end{pmatrix}$  &  $B = \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}$  DzAgé AB AA ± ÄTÄAA  
 then order of AB is  
 A) 1x3      B) 3x1      C) 3x3      D) 1x1
- 4)  ${}^5P_r = 120$  DzÁUÀ r fA " E-E / If  ${}^5P_r = 120$  then 'r' is  
 A) 4      B) 5      C) 4 or 5      D) - 5
- 5)  $(a^2 - 9)$  &  $(a^2 + 6a + 9)$  EAAKA A, C AA, Á.C A, VAA PAA ÁV  $4xy^2$  &  $8x^3y^5$  DzAgé D © AEAEQKA  
 The HCF of  $(a^2 - 9)$  &  $(a^2 + 6a + 9)$  is  
 A)  $a + 3$       B)  $a - 3$       C)  $(a+3)(a-3)$       D)  $(a+3)^2(a-3)$
- 6) JgqAA © AEAEQKA A, C AA, Á.C A, VAA PAA ÁV  $4xy^2$  &  $8x^3y^5$  DzAgé D © AEAEQKA  
 The expressions with HCF & LCM as  $4xy^2$  &  $8x^3y^5$  is  
 A)  $4x^2y^5$  &  $8x^3y^2$     B)  $4xy^5$  &  $8x^3y^2$     C)  $4x^2y^5$  &  $8xy^2$     D)  $4y^5$  &  $8y^2$
- 7)  $\Sigma a(a - b + c)$  EAA B « A 1 , APÉA | 1 zÁUÀ SgAA A " E-E  
 When  $\Sigma a(a - b + c)$  is exanded and simplified we get  
 A)  $a^2 + b^2 + c^2$       B) 1      C) ab + bc+ ca      D) 0
- 8)  $(x^2 + y^2 + xy)$  AAVAA(  $x - y$ ) A, UAA SIZA " E-E / The product of  $(x^2 + y^2 + xy)$  &  $(x - y)$  is  
 A)  $(x - y)^3$       B)  $(x + y)^3$       C)  $x^3 + y^3$       D)  $x^3 - y^3$
- 9)  $3\sqrt{5}$  &  $\sqrt{7}$  gA UAA SIZA " E-E / The product of  $3\sqrt{5}$  &  $\sqrt{7}$  in the form of index is  
 A)  $3(35)^{\frac{1}{2}}$       B)  $2(35)^{\frac{1}{2}}$       C)  $35(2)^{\frac{1}{2}}$       D)  $2(35)^{\frac{1}{3}}$
- 10) AAZAPAA DzAgé DzAAgMEY / The standard form of a pure quadratic equation is  
 A)  $ax^2 + bx + c = 0$       B)  $ax^2 = -c$       C)  $ax = -cx$       D)  $ax^2 + bx = 0$
- 11)  $x^2 = 5x$  DzAgé x fA " E-E / If  $x^2 = 5x$  then the value of 'x' are  
 A) 0      B) 0 & 5      C) 5      D) 0 & - 5

## UNIT II

- 12)  $(3 \pm \sqrt{2})$  තුළු වෙනස් පරිඛීලියා මේත්‍රික් පෙන්වනු ලබයි  
 Quadratic equation with roots  $(3 \pm \sqrt{2})$  is  
 A)  $x^2 + 6x - 7 = 0$       B)  $x^2 - 6x + 7 = 0$       C)  $x^2 + 6x - 7 = 0$       D)  $x^2 - 6x - 7 = 0$
- 13) සංදු නිඩිස් වෙනස න්‍යුම්කරණය පරවලය මතු නරජරේව්‍ය නැශ්‍යෙලු නරජරේව්‍ය (−3,9)  
 ආවානු(1, 1) ගැනීමෙන් යෝගාත් පැහැදිලි පැවත්වේ. මෙයින් පැවත්වේ. D) පැවත්වේ.
- In a graph, straight line intersects the parabola at (−3,9) & (1, 1) Then the equation is  
 A)  $x^2 - 2x + 3 = 0$       B)  $x^2 + 2x - 3 = 0$       C)  $x^2 - 3x + 2 = 0$       D)  $x^2 - 2x - 3 = 0$
- 14) AB & CD උගාංචා යෝගාත් පැහැදිලි පෙන්වනු ලබයි. පෙන්වනු ලබයි. AB මේත්‍රික් 3 . 5 ඇ. දැඟී  
 eAa AB & CD උගාංචා පැහැදිලි පැවත්වේ. AB & CD are two equal chords in a circle. If the distance from chord AB to the centre is  
 3 . 5cm, then distance between AB & CD is  
 A) 7cm      B) 3 . 5cm      C) 4 . 5cm      D) 7 . 5cm
- 15)  $\Delta ABC \sim \Delta DEF$ .  $\frac{BC}{EF} = \frac{2.5}{5}$   $\Delta ABC$  මේත්‍රික්  $120$  නැංවා. මෙයින් පැවත්වේ.  $\Delta DEF$  මේත්‍රික්  $120$  නැංවා.  
 $\Delta ABC \sim \Delta DEF$ ; If BC = 2 . 5 and area of  $\Delta ABC = 120$  sq cm then  $\Delta DEF$  is  
 A) 240 sqcm      B) 120 sqcm      C) 840 sqcm      D) 480 sqcm
- 16) O Pෙන්වනු ලබයි. APB උගාංචා P ගැනීමෙන් පැවත්වේ. QPB =  $60^\circ$  Dැඟී  $\angle PQO =$  ——  
 In the figure, APB is a tangent. If  $\angle QPB = 60^\circ$  then  $\angle PQO =$  ——  
 A)  $60^\circ$       B)  $30^\circ$       C)  $90^\circ$       D)  $120^\circ$
- 17)  $\angle QPB = 60^\circ$  ගැනීමෙන් පැවත්වේ.  $\angle QPR = 50^\circ$  Dැඟී  $\angle QOP$  Cැංවේ  
 In the adjoining figure, PQ & PT are tangents.  
 If  $\angle QPR = 50^\circ$  then  $\angle QOP$  is ——  
 A)  $50^\circ$       B)  $65^\circ$       C)  $80^\circ$       D)  $130^\circ$
- 18) MAZĒ වෙනස් පැවත්වා පැහැදිලි මේත්‍රික්  $1^\circ$  Aqagī Uවා වැඳා පැහැදිලි පැවත්වා පැහැදිලි පැවත්වා  
 Relation between a cone and a cylinder with same radius and height is  
 A)  $\pm \text{APAA} = 1^\circ$  Aqagī      B)  $3 \pm \text{APAA} = 1^\circ$  Aqagī      C)  $\pm \text{APAA} = 3^\circ$  Aqagī      D)  $J \times \text{PA} \times \text{A}$   
 A) cone = cylinder      B) 3 cone = cylinder      C) cone = 3 cylinder      D) All the above
- 19) MAZĒ ගෙඳෙරු ඇත්තා නැංවා. Ez. Cz. 1000 Z.  $\times 1^\circ$  නැංවා. MAZĒ  
 පැවත්වා පැවත්වා පැවත්වා පැවත්වා පැවත්වා
- The lateral surface area of a roller is 5sqm. Find the number of revolutions that it does to cover a field of 000 sqm  
 A) 100      B) 200      C) 50      D) 500
- 20) F eAa පැවත්වා නැංවා. ගැනීමෙන් පැවත්වා  
 In the figure, number of odd nodes is ——  
 A) 3      B) 2      C) 1      D) 0



II 21)  $a \times r = 10$  &  $a + ar = 10$   $\therefore a(1+r) = 10$   $\therefore a = \frac{10}{1+r}$

1x10

If  $a$  &  $r$  are the first term and common ratio then  $S_\infty$  is

22)  $2 \times 8 = 16$  &  $\text{AM} = \frac{2+8}{2} = 5$ . Find the AM between 2 & 8

23)  $M = \begin{pmatrix} 5 & 6 \\ -1 & 2 \end{pmatrix}$   $DzAgé M - M^{-1} = \frac{1}{10}$  find  $M - M^{-1}$

24)  $\frac{1}{a} + \frac{1}{b} = \frac{1}{ab}$  Write the formula to find the coefficient of Variation.

25)  $(6x - 12)$  &  $(6x^2 - 24)$  LCM?

Find the LCM of  $(6x - 12)$  &  $(6x^2 - 24)$

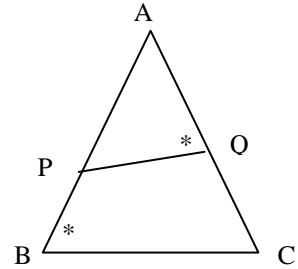
26)  $\Sigma m = 0$   $DzAgé \frac{n+p}{m} \left( \frac{p}{m+n} \right)$  If  $\Sigma m = 0$

Find the value of  $\frac{n+p}{m} \left( \frac{p}{m+n} \right)$  If  $\Sigma m = 0$

27)  $\frac{1}{a} + \frac{1}{b} = \frac{1}{ab}$  Write the formula to find the lateral surface area of hemisphere.

Fill in the blank with suitable answer based on given figure.

$$\frac{AB}{AC} = \frac{AQ}{\boxed{PQ}}$$



28) DAHvAzÀ PAtØ 17, EA. «AA CzAgé MAZAA ° 15, EA. «AA EzNé aAHvEzAzAA ° AA «EA CzAvé Calculate the breadth of a rectangle whose length and diagonal are 17cm and 15cm.

29) JgAgé wæAAduvAA, AAPEÆÄxAAvAAzAgé, CAvAA CzAgéAEYAA ° AA

If two triangles are equiangular, then their corresponding sides are ——

30). CzDvEzvAAzÀ YÁtØ «AA «1 AtØ PAAqAA » rAAvAA, AA

Write the formula to find the lateral surface area of hemisphere.

III. 31)  $A = \{3, 4, 5, 6, 7\}$ ,  $B = \{4, 5, 6, 8\}$  &  $C = \{5, 6, 7, 8\}$   $DzAgé A \cap (B \cup C)$  AA

$\therefore A \cap (B \cup C) = \{5, 6, 7\}$ .

2x16

Draw the Venn diagram of  $A \cap (B \cup C)$ . Given  $A = \{3, 4, 5, 6, 7\}$ ,  $B = \{4, 5, 6, 8\}$  &  $C = \{5, 6, 7, 8\}$

32)  $\text{In a school day program } 60\% \text{ students participate in dance, } 25\% \text{ in drama and } 7\% \text{ in both. Find the percentage of students who participate in drama only.}$

33)  $\text{MAZAA } \times 100 = 7 \times 100 = 700$  &  $T_3 = \frac{2}{17}$  &  $T_1 = \frac{2}{9}$   $DzAgé T_{10} = \frac{2}{9} \times 100 = 222$   $PAAqAA » r - Aj$ .

If  $T_3 = \frac{2}{17}$  &  $T_1 = \frac{2}{9}$  then find  $T_{10}$  of HP

34)  $\text{MAZAA } \times 100 = 7 \times 100 = 700$  &  $T_3 = \frac{2}{17}$  &  $T_1 = \frac{2}{9}$   $DzAgé T_{10} = \frac{2}{9} \times 100 = 222$   $PAAqAA » r - Aj$

$\text{If } T_3 = \frac{2}{17} \text{ & } T_1 = \frac{2}{9} \text{ then find } T_{10} \text{ of HP}$

7 boxes are kept on a table. Kran put one marble in first box, 2 in II box, 4 in III box and so on. Find the total number of marble that are required to keep in boxes with same order.

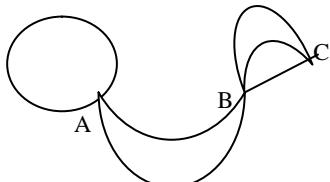
35)  $A = \begin{pmatrix} 2 & 1 \\ 3 & 0 \end{pmatrix}$   $DzAgé A^2 + A = PAAqAA » r - Aj$ .

then find  $A^2 + A$

## UAKA AZA II

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- 36) 4 କୁଣ୍ଡଳରେ 5 ଜନରୁ ଏହୁଁ ବିଧରେ କୁଣ୍ଡଳ କୁଣ୍ଡଳରେ ବାହୁଦିଶିବାରୁ ?  
In how many ways 5 people can be seated in 4 chairs.
- 37)  $(2\sqrt{x} - \sqrt{y})^2 = (3\sqrt{x} + 4\sqrt{y})^2 - (2\sqrt{x} - \sqrt{y})$ .  
Subtract  $(2\sqrt{x} - \sqrt{y})$  from  $(3\sqrt{x} + 4\sqrt{y})$
- 38)  $\frac{5\sqrt{3}}{\sqrt{10} - \sqrt{5}}$  Rationalize the denominator and simplify.
- 39) MAZNA DAHAvAPAgZA °EAE®ZA , AVAV 54 , EA. «AA CzAgA « 1 At 180 ZA . EA. «AA DzAgE °EAE®ZA GzAy aAVMA CU® PAAqAA »r - Aj .  
The perimeter and area of a rectangular field are 54 cm and 180 sq cm, Find its length & breadth.
- 40)  $(m+8)^2 - 5 = 31$ , AA APAgAt a AEAB © r<sup>1</sup>.  
Solve for 'm' :  $(m+8)^2 - 5 = 31$
- 41)  $x + \frac{6}{x} = 5$  DzAgE ' x ' EA. x find ' x '
- 42)  $2m^2 - 4m + 1 = 0$ , AA APAgAt za aAE®UAVAA a & b UAVAzAUa  $\frac{1}{a^2} + \frac{1}{b^2}$  PAAqAA »r - Aj .  
If a & b are the roots of  $2m^2 - 4m + 1 = 0$  the find the value of  $\frac{1}{a^2} + \frac{1}{b^2}$
- 43) F °EAE½PÉ , Aj AEAA? vAYEP PAgAt PEEr / Say true or false and give reason:  
a)  $9 \equiv 23 \pmod{12}$   
b) What is the value of  $(6 \oplus_7 3)$  ର ଚେଲେ ଏହୁଁ ?
- 44) 3 , EA. «AA wALa«gAA A AEVA ° e4 . 5 , EA. «AA eAA gAA 1 , eAAzA CAvAA © AzAAUAVAA ° e , AAOPAUAVAAEAB gAA 1 j .  
Draw a circle of radius 3cm and construct tangents at the end points of a chord of length 4 . 5cm
- 45) MAZNA HAPAA «EA WAEY ® 616 WA . EA. «AA ¥AzA « 1 At 154 ZA . EA. «AA DzAgE JvAG PAAqAA »r - Aj .  
Volume of a cone is 616 sqcm. If the area of its base is 154 sqcm, find its height.
- 46) , MEPUYAA AtzEAECEUE PEAUVEA CVAEUE CEEA , AgAA V d «AA x EA fAPeegAA 1 j .  
Draw the outline using suitable scale.
- D UE «AAI gi UAVA ° e/To in meters
- |         |     |
|---------|-----|
| C UE 30 | 100 |
| B UE 40 | 80  |
| A UE 40 | 30  |
- A → AAzA /from
- 47) eAApewUE , AA SACII zA aAVAPÉ gAA 1 j .  
Write the matrix for the following graph.
- 48) wAAdyAzA YAI DAAZAPAEgAA 1 , DAHAGAE , MEVAA CEE - A 1 vAYEP EEEAr.  
Draw the triangle based prism and apply the Euler's formula.
- 49) MAZNA ¥EnUEA ° e4 x A ° aAVAAU5 PEAYAA StUA UEEA ° UAVA ° . ¥EnUE - AAzA vEEA ° aAAEGAA  
ନୀଳ ଦୋଷରେ ପାଞ୍ଚ ଏହୁଁ ବିଧରେ କୁଣ୍ଡଳ ଦୋଷରେ ପାଞ୍ଚ ମୋରତେ ଦେଇବାରୁ ?  $3 \times 6$   
A box contains 4 blue and 5 red marbles. In how many ways 6 marbles can be drawn so that 3 of them are blue ?



- 50) F PÉÂAUÉ PÉÆnGÀÀ «ÀgÀuÉAÀÀ «ÀiÁFÀPÀ «ZÀ®FÉ PÀAqÀ» r→Àj .

Find the standard deviation for the following data.

X	10	15	20	25	30	35
f	3	8	5	9	4	1

- 51) JgÀqÀÀ ©ÀeFÆÄQÙÀÀ ÀÀ, Á.C àÀvÀÜ®, Á.C UÀÀÀ PÀÀÀ ÁV (x - 3) àÀvÀÜ(x<sup>3</sup> - 5x<sup>2</sup> - 2x + 24) °ÀuÀÆ MAZÀÀ ©ÀeFÆÄQÙ(x<sup>2</sup> - 7x + 12) DzÀgÉ EÆÆRÀzÀÀ ©ÀeFÆÄQÙPÀAqÀÀ» r→Àj .

The HCF and LCM of two algebraic expressions are (x - 3) & (x<sup>3</sup> - 5x<sup>2</sup> - 2x + 24) . If one expression is (x<sup>2</sup> - 7x + 12) find the other.

- 52) xy (x + y) = 1 DzÀUÀ  $\frac{1}{x^3y^3} - x^3 - y^3 = 3$  JAzÀÀ , ÁCí

Then show that  $x^3y^3$

- 53) vÀÀ dàzÀ° eMAZÀÀ PÀtÒÀÀ EÆÆRÀzÀÀ PÀtÒÀÀ 2 : 1 CÆÀ¥ÁvÀzÀ° «ÀvÀvÀzÀ , ÁÀiÁAvÀgÀ ÁoÀuÀvÀ° eMAzÀÀ EÆÆRÀzÀgÀ JgÀqÀgÀ¶jé JAzÀÀ vÌÆÀj <sup>1</sup>.

In a trapezium one of its diagonal divides the other in the ratio 2 : 1. Show that of its parallel side is twice the other.

- 54) A, B ,C & D PÉÂAzÀÀÀÀÀÀ 3 , ÉA. «Àwclà«gÀÀÀ 4 aÈvÀuÀvÀÀ avÀzÀ° gÀÀÀÀAvÉ , ÀpÒ , ÀvÀvÀ. ABCD àÀuÀözÀ vÌÆeøe èsø?

Four circles with centre A, B, C & D are of radii 3cm touch externally as shown in the figure. Find the area of ABCD square.

- 55) , ÁÀiÁAvÀgÀ ±ÀrÀÀ 5 EÉ ¥ÀzÀ aÀvÀÜ10EÉ ¥ÀzÀvÀÀ 1 : 2 ¥ÀnÀÁtzÀ° pÉ.T<sub>12</sub> = 36 DzÀgÉ D ±Àrù SgÉ. 4x4 The fifth and 10th terms of AP are in the ratio 1 : 2. If T<sub>12</sub> = 36 then write the sequence.

- 56) y =  $\frac{1}{2} x^2$  EÆPÉgÀÀ 1,  $\sqrt{10}$  gÀ ÁÈÀMÈÀÀ PÀAqÀÀ » r→Àj .

Draw the graph of y =  $\frac{1}{2} x^2$  and find the value of  $\sqrt{10}$

- 57) PÉÂAzÀÀÀÀ CAVÀgÀÀ 9 , ÉA. «Àwclà«gÀÀÀ JgÀqÀÀ , ÁÀoÀ , ÁÀÀ aÈvÀuÀ½UÉ aÀvÀÀ , ÁÀiÁÈÀÀ , ÁÀoPÀuÀvÀÀ ÈÀÀ gÀÀ 1 .

Draw two congruent circles of radii 3.5cm with their centres 9cm apart. Construct TCT.

- 58) MAZÀÀ ®ASpÉÆÆÀ wÀÀdÀzÀ° «PÀtÒzÀ aÀuÀözÀ G½zÉgÀqÀÀ ÁoÀuÀvÀÀ aÈvÀpÈ , ÁÀÀÀAvgÀvÀzÀ JAzÀÀ , ÁCí

In a right angled triangle ,prove that suqare on the hypotenuse is equal to sum of the squares on other two sides.

- 1) For any sets A, B and C,  $(A \cup B) \cup C = A \cup (B \cup C)$  represents \_\_\_\_\_ property.  
 A, B  $\in$   $\mathcal{U}$   $\forall A, B, C \in \mathcal{U} \text{ and } A \cup (B \cup C) = (A \cup B) \cup C$   $\Rightarrow$  A is a set of  $\mathcal{U}$   
 A) Associative    B) Commutative    C) Distributive    D) Closure  
 A)  $\mathbb{P} \in \mathbb{M} \text{ and } A \in \mathbb{M}$     B)  $\mathbb{J} \in \mathbb{M} \text{ and } A \in \mathbb{M}$     C)  $\mathbb{C} \in \mathbb{M}$     D)  $D \in \mathbb{M}$

2) First term of a GP is 4 and common ratio is 2 then 5<sup>th</sup> term is  
 MAZÄ UÄUFEVÄ  $\Rightarrow$   $a = 4, r = 2 \Rightarrow a_5 = 4 \times 2^4 = 64$   
 A) 8    B) 16    C) 32    D) 64

3) A &  $A^T$  are the matrix and its transpose. Then  $A + A^T$  is always  
 A &  $A^T \in \mathbb{M} \text{ and } A + A^T \in \mathbb{M}$   $\Rightarrow$  A +  $A^T \in \mathbb{M}$   
 A) Skew symmetric matrix/വിഘ്ന സമീക്ഷി    B) Symmetric matrix/ഇംഗ്രേജ്  
 C) Null matrix /ശൂന്യമായ മാത്രം    D) Identity matrix/സിഡിറ്റി

4) If two expressions are prime to each other, then HCF of them is  
 Jgäqä ©AeKEAQUMÄ  $\Rightarrow$   $C \in \mathbb{M} \text{ and } C^T \in \mathbb{M} \Rightarrow C + C^T \in \mathbb{M}$   
 A) 0    B) -1    C) 1    D)  $\pm 1$

5) The value of  $\sum a(b - c)$  is/  
 MAZÄ  $\sum a(b - c) = a(b - c) + a(b - c) + \dots$   
 A) 1    B) -1    C) 0    D) -2

6)  $a + b + c = 2s$  then  $2s - 2b$  is equal to \_\_\_\_/  
 a + b + c = 2s  $\Rightarrow 2s - 2b = a + b + c - 2b = a - b + c$   
 A)  $a + b - c$     B)  $a + c - b$     C)  $b + c - a$     D)  $a - b - c$

7) Rationalizing factor of  $m\sqrt{p+q}$  is  $\sqrt{p+q}$   
 A)  $\sqrt{p-q}$     B)  $m\sqrt{p-q}$     C)  $\sqrt{p+q}$     D)  $m\sqrt{p+q}$

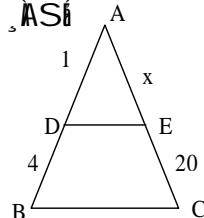
8) Which of the following is a pure quadratic equation ?  
 E  $\in$   $\mathbb{M}$   $\Rightarrow$   $x^2 - 2x + k = 0$   $\Rightarrow$   $k = 0$   
 A)  $x + 2 = 5$     B)  $2x^2 = 72$     C)  $x(x - 1) = 0$     D)  $x^3 - 27 = 0$

9) The value of 'k' in the equation  $x^2 - 2x + (k + 3) = 0$  has one root equal to zero  
 $x^2 - 2x + (k + 3) = 0$   $\Rightarrow$   $k = -3$   
 A) 0    B) 1    C) -3    D) 3

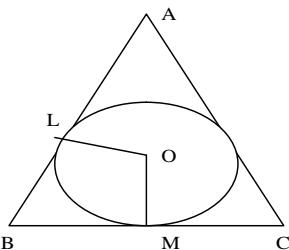
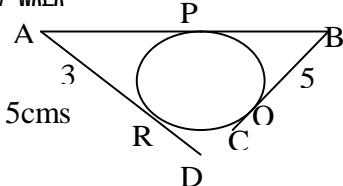
10) Number of tangents that can be drawn to a circle from an external point is  
 MAZÄ  $\Rightarrow$   $A \in \mathbb{M} \text{ and } A \in \mathbb{M}$   $\Rightarrow$  A is a point  
 A) 3    B) 3    C) 4    D) 5

11) In the adjoining figure,  $AD : AB = 1 : 5$   
 and  $CE = 20$  cms, then the value of 'x' is  
 av  $\Rightarrow$   $AD : AB = 1 : 5$  &  $CE = 20$  cms,  $D \in \mathbb{M}$   $\Rightarrow$  x  $\in \mathbb{M}$   
 A) 1    B) 4    C) 5    D) 25

12) Formula to find the volume of a hemisphere is \_\_\_\_\_  
 MAZÄ  $\Rightarrow$   $V = \frac{2}{3}\pi r^3$   
 A)  $\frac{3}{2}\pi r^2 h$     B)  $\frac{4}{3}\pi r^2 h$     C)  $\frac{4}{3}\pi r^3$     D)  $\frac{3}{2}\pi r^3$



- 13) A regular polyhedron with regular pentagonal faces is called  
 ಸಾಮಾನ್ಯ ಪಿಂಗಳನ್ನು ಅಂತರಿಸಿದ ಸಾಮಾನ್ಯ ಮಾನ್ಯ ಪಿಂಗಳನ್ನು ಅಂತರಿಸಿದ  
 A) Tetrahedron      B) Hexahedron      C) Dodecahedron      D) Icosa hedran
- 14) In the figure, AB, BC and AD are the tangents to the circle.  
 $AR = 3\text{ cms}$ ,  $BQ = 5\text{ cms}$  then  $AB$  is  
 ಅವುಗಳ ನಡ್ಲೆಗಳ ವರ್ತಣೆಗಳನ್ನು ಅಂತರಿಸಿದ್ದರೆ  $AR = 3\text{ cms}$ ,  $BQ = 5\text{ cms}$   
 DZAU AB EACM  
 A) 5cms      B) 15cms      C) 8cms      D) 2cms
- 15) Total surface area of two identical solid hemispheres is  $600\text{ cm}^2$ .  
 The area of the sphere formed by them is  
 ಇಗಳ ಪ್ರಾಯ ಕ್ಷೇತ್ರ ಮಾನ್ಯ ಮಾನ್ಯ ಪ್ರಾಯ ಕ್ಷೇತ್ರ ದಿಂತಿಗೆ  $600\text{ cm}^2$  DZBf YETDUEA/2  
 «1/2t0  
 A)  $600\text{ cm}^2$       B)  $400\text{ cm}^2$       C)  $300\text{ cm}^2$       D)  $200\text{ cm}^2$
- 16) If  $K = \frac{1}{2}mv^2$  then the value of 'v' is  
 $K = \frac{1}{2}mv^2$  DZAU 'v' EAK  
 A)  $\pm \sqrt{\frac{2K}{m}}$       B)  $\pm \sqrt{\frac{2m}{K}}$       C)  $\pm \sqrt{\frac{2K}{m}}$       D)  $\pm \sqrt{\frac{2m}{K}}$
- 17) Sum and product of the equation  $3x^2 - 6 = 0$  are  
 $3x^2 - 6 = 0$  gA aAE@UMA aEVIA aAVU@SIA  
 A) 2, 0      B) 0, -2      C) -2, 0      D) 2, -2
- 18) There are 10 blue buses to go from Udupi to Bangalore and 5 red buses to come from Bangalore to Udupi. How many ways one can go and come back to Udupi?  
 GqA! -AAZ AUMAej Ue oEAEUPA 10 sA S AUMaE AUMAej AzA GqA! Ue SgPA 5 PAyA S AUMaE  
 ಒಬ್ಬನು ಬೆಂಗಳೂರಿಗೆ ಹೋಗಿ ಮನಃ ಉಡುಪಿಗೆ ಎಷ್ಟು ರೀತಿಯಲ್ಲಿ ಬರಬಹುದು ?  
 A)  ${}^{10}C_1 \times {}^5C_1$       B)  ${}^{10}P_1 \times {}^5P_1$       C)  ${}^{15}P_1 \times {}^5P_1$       D)  ${}^{10}P_1 \times {}^{15}P_1$
- 19) LCM of  $(x^3 - 8)$  and  $(x^2 + 2x + 4)$  is  
 $(x^3 - 8) = A(x^2 + 2x + 4)$  UMA @. A.C. aA  
 A)  $x^3 - 2^3$       B)  $x^2 - 2^2$       C)  $x^3 + 2^3$       D)  $x^2 - 2^2$
- 20) In the figure AB, BC and AC are the tangents to the circle with centre O. OL and OM are the Perpendiculars to the tangents.  $\angle B = 70^\circ$  then  $\angle LOM$  is  
 ಅವುಗಳ ನಡ್ಲೆಗಳನ್ನು ಅಂತರಿಸಿದ್ದರೆ  $\angle B = 70^\circ$  DZBf  $\angle LOM =$   
 A)  $140^\circ$       B)  $110^\circ$       C)  $90^\circ$       D)  $100^\circ$
- II. Answer the following.  $1 \times 10 = 10$
- 21)  $n^{\text{th}}$  term of a GP is  $T_n$ , common ratio is 'r' then  $T_{n+1}$  is \_\_\_\_\_  
 UAUAEVIA nfe AIA nfe T\_n aAVU AAE CFEYAVI 'r' DZBf T\_{n+1} EAK YIZA
- 22) A, G & H are the AM, GM & HM for any two positive numbers. Then the relation between them can be written in the form of formula is \_\_\_\_\_  
 A, G aAVU H UMA , PIAAVgA aAAZ A UAUAEVIA aAAZ aAVU OyAVPA aAAZ P AzBf C aUMA , ASAZIA  
 MEVBSg



### UAKA AZA III

- 23)  $A = \begin{pmatrix} 0 & 2x \\ 6+x & 0 \end{pmatrix}$  is a skew symmetric matrix, then the value of 'x' is \_\_\_\_\_  
 ඔබ විස්තර තුළු මාලුකේයාදර් 'x' නැත්තේ \_\_\_\_\_

- 24) If A is an assumed mean. The value of actual mean can be found out by the formula  
 $A + \frac{\sum fd}{\sum f} \times d$

- 25) HCF of :  $x^3 - 64$  and  $x^2 - 16$  is \_\_\_\_\_ /

$$(x^3 - 64) \text{ and } (x^2 - 16) \text{ EKAIAA A.C. AE?}$$

- 26) Using notation  $-x + y^2 - z + x^2 - x + z^2$  can be written as \_\_\_\_\_  
 $-x + y^2 - z + x^2 - x + z^2$  නෑත්තා ගිණීම් සිංහල ---

- 27) In the figure AP tangent = 12cms, OA radius = 5cms, then the length of OP is ---  
 පෙන්වනු ලබා මෙහෙයුම් නෑත්තා මෙහෙයුම් ---

- 28) In the figure, AC II DE, then corollary of BPT  
 in terms of a,b,c &d is \_\_\_\_\_

$$\text{aAE}^{\circ} \text{ PMAE}^{\circ} \text{ YAVMAI}^{\circ} \text{ GYMAIAZ}^{\circ} \text{ Dzgj OP EKAIAA ---}$$

$$a,b,c \text{ and } d \text{ EKAIAA A.SAZA SgE AJ.}$$

- 29) Total surface area of a cylinder is \_\_\_\_\_

$$\text{MAZ}^{\circ} 1^{\circ} \text{ Aqj EKAIAA } \text{ aAE}^{\circ} \text{ tD } \text{ aAE}^{\circ} \text{ Pqj } \text{ rAIAA A. ---}$$

- 30) State converse of Pythagorean theorem/ යිකුතුවාගා නෑත්තා පෙන්වනු ලබා ගිණීම්  
 III. Answer the following / F PIAVEP AIAEBS Gy 1.

- 31)  $A = \{ r, a, t \}$ ,  $B = \{ c, a, t \}$  find  $A \cap B$  through Venn diagram.

$$A = \{ r, a, t \}, B = \{ c, a, t \} \text{ Dzgj } A \cap B \text{ EKAIAA Ei avan aAE}^{\circ} \text{ PAVAE AJ. 1.}$$

- 32) A florist has 110 champak flowers garlands. 50 off jasmine garlands and 30 of each. Find the total number of garlands with him.

MSa o KEA ArUEA \$110 , A Ue o KEA EAB o KEACgaa o Agumaa 50 a o KEA EAB o KEACgaa o Agumaa  
 aAvu 30 Jgla SUAIA o KEUM EAB o KEACgaa o Agumaa Eaf o AUAzgj C aEgaa MI a o Agumaa ASI  
 ටුවු ?

- 33)  $S_8 : S_4 = 97 : 81$  Find the common ratio. /  $S_8 : S_4 = 97 : 81$  Dzgj , AaAEA CEAYAVP EAB  
 $\text{Pqj } \text{ r-AJ.}$

- 34) In a HP, 4<sup>th</sup> term is  $\frac{1}{3}$  and 12<sup>th</sup> term is  $\frac{1}{27}$ . Write the HP.

$$\text{MAZ}^{\circ} \text{ yAvPA + BEIAA EKAIAA } \text{ YLA } \frac{1}{3} \text{ aAvu } 12 \text{ EKAIAA } \frac{1}{27} \text{ Dzgj } \text{ yAvPA + BEIAA EAB SgE AJ.}$$

- 35) Solve for 'x' :  $\begin{pmatrix} x^2 & 3 \\ 4 & 5 \end{pmatrix} - 2 \begin{pmatrix} x & 1 \\ -1 & 0 \end{pmatrix} = \begin{pmatrix} 0 & 1 \\ 6 & 5 \end{pmatrix}$  'x' EKAIAA Pqj r-AJ.

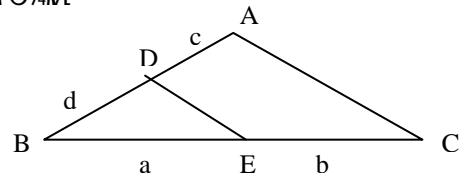
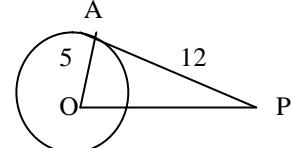
- 36) Write the meaning of  ${}^n P_r$  and write the formula./  ${}^n P_r$  EKAIAA AEBSgE

- 37) Find the product of  $\sqrt{3}$  and  $\sqrt[3]{2}$  /  $\sqrt{3} \text{ and } \sqrt[3]{2}$  UAt®Sp Pqj r-AJ.

- 38) Solve the equation using formula:  $x^2 - 7x + 12 = 0$

$$x^2 - 7x + 12 = 0 \text{ EKAIAA } \text{ GYAIIEAV } \text{ Cr } 1.$$

- 39) Rationalize the denominator and simplify:  $\frac{2\sqrt{5}}{\sqrt{6} + 2}$



- 40) The base of a triangle is 4 cms more than its height. Area of the triangle is  $48\text{cm}^2$  Find its base and height.

MAZÄ wäddzä ¥ÁzPÄ JvibDAvä 4 , Á «ää °ÉÁWzé Czgä « 1Itöä 48 ZÄ , Á «ää Czgä ¥ÁzLäGzä  
ävü JvibP EÄB PÄqä» r-näj .

- 41) If one root of the equation  $x^2 + px + q = 0$  is 3 times the other then prove that  $3p^2 = 16q$   
 $x^2 + px + q = 0$ , kääPigt zä MAZÄ aME®ä EEEPAZÄ aME®zä 3 gñtögf 3p<sup>2</sup> = 16q JAzÄ , ÁCä .

42) Solve /©r<sup>1</sup> :  $(x+4)(x-4) = 6x$

43) Find the sum of/ E aÅMEÄB , APÄ | 1 : a)  $(4 \oplus_7 6) \oplus_7 5$       b)  $(5 \otimes_6 4) \oplus_6 3$

44) Draw the plan of a field with following data/ F zñAÄ±UMAZÄ EPE glä 1 :

To D in meters

300

275 To C 75

To E 50 200

150 To B 50

100

From A

- 45) Construct two tangents at the ends of a diameter of a circle of radius 3cms

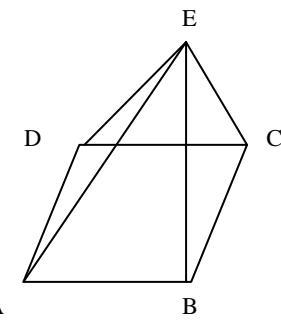
MAZÄ aMzä wä 3 , Á «ää Czgä aÁzLä vñC ©AzÄUMR e , EDPUMÄB glä 1 .

- 46) Verify  $F + V = E + 2$  formula for the given polyhedron.

F WIEÄPÄWUÉ F + V = E + 2 , KEVDEÄB CEÄÄ 1 vñké EKEÄR .

- 47) Construct the graph for the given matrix./ F aÅVÄPÄIÄ eÄ ÄPÄW glä 1 .

$$\begin{pmatrix} 0 & 3 & 0 \\ 3 & 0 & 2 \\ 0 & 2 & 3 \end{pmatrix}$$



- 48) The curved surface area of a cone is  $440\text{cm}^2$  and slant height is 10cms. Find radius of the cone.

MAZÄ ±ÄPÄ«EÄ aPÄÄ - ÄPÄÄ 440 ZÄ , Á «ää aÅvü Ngé JvibP 10 , Á AF Dzgä Czgä wä EÄB PÄqä» r-näj .

- IV Answer the following / PÄVÄEÄ ¥ÄMÄKUÉ GvJ 1 .  $3 \times 6 = 18$

- 49) A school has 8 teachers. HM is one among them. A) How many committees of 5 can be formed? How many of these have HM as a member?

ಒಂದು ಶಾಲೆಯಲ್ಲಿ 8 ಜನ ಶಿಕ್ಷಕರಿದ್ದಾರೆ. ಅವರಲ್ಲಿ ಮುಖ್ಯಶಿಕ್ಷಕರು ಒಬ್ಬರು. ಅ) ಇವರಿಂದ 5 ಜನರ ಎಷ್ಟ ಸಮಿತಿಗಳನ್ನು ಮಾಡಬಹುದು? ಆ) ಇಂತಹ ಎಷ್ಟ ಸಮಿತಿಗಳಲ್ಲಿ ಮುಖ್ಯಶಿಕ್ಷಕರು ಇರುತ್ತಾರೆ?

- 50) In a cricket play Arun and Bharath scored average run 70 and 60 and mean deviation 4.2 and 3.0 respectively. Who is more consistent?

CgÄuï aÅvü °gvi E aÅgä Qäi DI zä gä Ä , gÄÄMÄKA PÄÄ ÄV 70 aÅvü 60 °ÄUÆ aÅEPÄ «ZPEE 4.2 aÅvü 3.0 Dzgä AiÄAgä x aD o lü 1 gä ÄVZé ?

- 51) Find the HCF of :  $x^3 - 2x^2 - 13x - 10$  and  $x^3 - x^2 - 10x - 8$

$x^3 - 2x^2 - 13x - 10$  aÅvü  $x^3 - x^2 - 10x - 8$  E aÅMÄ aÄ , Á.C. aÅEÄB PÄqä» r-näj .

- 52) If  $a + b + c = 0$  prove that  $b^2 - 4ac$  is a perfect square.

$a + b + c = 0$  Dzgä  $b^2 - 4ac$  MAZÄ ¥Ätöä ND JAZÄ vñEÄj 1 .

## UAAZĀ III

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- 53) In an equilateral  $\triangle ABC$ ;  $AN \perp BC$  prove that  $AN^2 = 3BN^2$

$\triangle ABC$  MAZĀ , PĀ A° A wād.  $AN \perp BC$  Dzgj AN<sup>2</sup> = 3BN<sup>2</sup> JAZĀ , ACF.

- 54) Three circles with centers A, B and C touch externally. AB = 7cms, BC = 5cms and AC= 6cms  
Find the radius of the circles

A, B a VĀ C PAAZĀ , A° PĀV , Pō, A a MEG A a MUMA V A E C a UMA PAAZĀ , E q A E A Z E g A  
AB = 7cms, BC = 5cms a VĀ AC = 6cms Dzgj D a MUMA wād UMEB P Aq A r - Aj .

- V Answer the following: 4x4=16

- 55) Sum of the six terms of an AP is 345 and difference between 1<sup>st</sup> and last term is 55. Find the terms of the AP

MAZĀ , PAAVg A + B A i A 6 YZUMA a EV 345. a E Z P a VĀ PEE A i A YZUMA a V A A , A 55 Dzgj , PAAVg A  
+ B A i A E B Sg E Aj .

- 56) Draw the graph of  $y = x^2$  and  $y = x + 6$  Hence solve the equation  $x^2 - x - 6 = 0$

$y = x^2$  a VĀ y = x + 6 UMA E P E g A 1 Czgj , PAAi A C A z A x<sup>2</sup> - x - 6 = 0 E B C r 1 .

- 57) Construct two TCT to two circles of radii 3.5cms and 2.5cms separated by 4cms measure the length of the tangent and verify with calculated length.

3.5 , A A a VĀ 2.5 , A A wād M J g q A a MUMA 4 , A A C A v g E P E C a U M U E a M I , A a M A E A  
, A D P U M E B J A E Aj .

- 58) Two triangles are equiangular, and then their corresponding sides are proportional. Prove

J g q A wād UMA , PAP E A A A i A U M A z g j C a U M A C E g K E Y A A O U M A , P A A E A Y A v l P g A V P J A Z A , A C F .

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