MODEL QUESTION PAPER

10th STANDARD

SUBJECT: MATHEMATICS

Time: 2 Hours 45 Min. **Max. Marks: 80**

I. Four alternatives are given for each of the following questions / incomplete statements. Only one of them is correct or most appropriate. Choose the correct alternative and write the complete answer along with its alphabet in the space provided against each question. ***(1 x 8 = 8)***

1) If the third term of a Geometic Progression is 2, then the Product of its first five terms is,

(A) 5^2 (B) 2^5 (C) 10 (D) 15

2) If ${}^nC_8 = {}^nC_{12}$ then the value of n is,

(A) 10 (B) 20 (C) 25 (D) 30

3) Probability of an impossible event is,

(A) 0 (B) 1 (C) 10 (D) 100

4) If Mean score $(\bar{X})$ = 20 and the coefficient of variation is 0.1, then the Standard deviation is,

(A) 2 (B) 0.2 (C) 20 (D) 0.02

5) If $f(x) = x^2 + 7x - 10$ then the value of f(2) is,

(A) 3 (B) 5 (C) 8 (D) 10

6) If $\tan x = \frac{7}{24}$ then cot x is,

(A) 7 (B) 24 (C) $\frac{7}{24}$ (D) $\frac{24}{7}$

7) The cordinates of the mid point of the line segments joining the points (2, 3) and (4, 7) is,

(A) (3, 5) (B) (7, 3) (C) (3, 4) (D) (8, 3)

8) The slope of the line joining the points (3, - 2) and (4, 5) is,

(A) 3 (B) 5 (C) 7 (D) 8

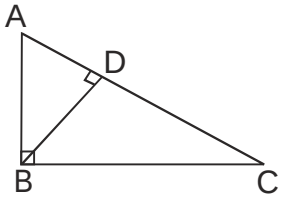
II. Answer the following ***(1 x 6 = 6)***

9) Express 6762 as a Product of Prime factors.

10) If Universal U = {1, 2, 3, 4, 5, 6, 7, 8} and subject A = {1, 2, 3} find $A^{|}$.

11) Find the zero of the Polynomial $x^2 + 2x + 1$.

12) In Δ^{le}ABC, $\angle ABC = 90^0$, BD $\perp$ AC.
If BD = 8cm and AD = 4cm find CD.



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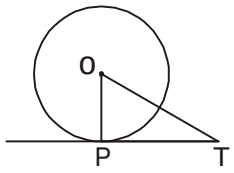
13) In the figure 'O' is the centre of the circle

PT is a tangent and if $\angle PTQ = 30^0$, find $\angle POT$.



14) Find the Surface Area of a sphere of radius 7cm.

III. Answer the following ***(2 x 16 = 32)***

15) Prove that $5 - \sqrt{3}$ is an Irrational number.

16) In a college, 60 students enrolled in Chemistry, 40 in Physics, 30 in Biology and 15 in Chemistry and Physics, 10 in Physics and Biology, 5 in Biology and Chemistry. No one enrolled in all the three subjects. Find how many are enrolled in atleast one of the subjects.

17) Classify the following into Permutations and Combinations.

a) Five different subject books to be arranged on a shelf.

b) There are 8 chairs and 8 people to occupy them.

c) In a committee of 7 persons, a chair person, a secretary and a treasurer are to be chosen.

d) Five keys are to be arranged in a circular key ring.

18) A committee of 5 is to be formed out of 6 men and 4 ladies. In how may ways can this be done when at least 2 ladies are included.

19) Rationalise the denominator and simplify : $\dfrac{5\sqrt{2} - \sqrt{3}}{3\sqrt{2} - \sqrt{5}}$.

20) Simplify : $8\sqrt{\dfrac{1}{2}} - \dfrac{1}{2}\sqrt{8}$

21) What must be added to $2x^3 + 3x^2 - 22x + 12$ so that the result is exactly divisible by $2x^2 + 5x - 14$?

OR

Divide $P(x) = x^2 + 4x + 4$ by $g(x) = x + 2$ and verify division algorithm.

22) Three numbers are in the ratio $\dfrac{1}{3} : \dfrac{1}{5} : \dfrac{1}{6}$. If the sum of their squares is 644, find the numbers.

23) Show that, $\tan\theta \cdot \sin\theta + \cos\theta = \sec\theta$.

24) Find the value of x, such that the distance between the points (2, 5) and (x, - 7) is 13 units.

25) Draw a circle of radius 3.5cm and construct a chord of length 6cm in it. Measure the shortest distance between the centre and the chord.

26) Draw a plan for the recordings from the surveyor's field work book given below. (Scale 20 meters = 1cm)

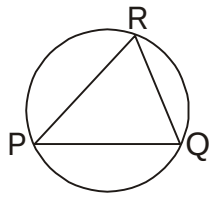
	Meters to D	
to E 80 ----------	140 120 ---------- 100 50 ----------	 60 to C 40 to B
	From A	

27) A solid cylinder has a T.S.A. of 462 square cm. Its C.S.A. is one third of the T.S.A. Find the radius of the cylinder.

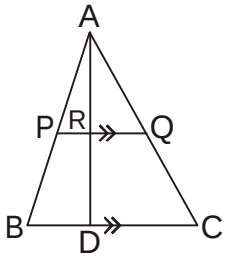
OR

A right circular metallic cone of height 20 cm and base radius 5 cm is melted and recast into a sphere. Find the radius of the sphere.

28) Verify Euler's formula for the given network.



29) In Δ^{le}ABC, PQ II BC. AP = 3 cm, AR = 4.5 cm, AQ = 6 cm, AB = 5 cm and AC = 10 cm. Find the length of AD .



30) A Bag contains 27 balls, of which some are White and others are Red. A ball is chosed at random. The probability of getting a Red ball is $\frac{2}{3}$. Find the number of White balls.

IV. Answer the following questions *(3 x 6 = 18)*

31) The third term of an Arithmetic Progression is 8 and the ninth term of the Arithmetic Progression exceeds three times the third term by 2. Find the sum of its first 19 terms.

32) Calculate the Standard Deviation of the given data.

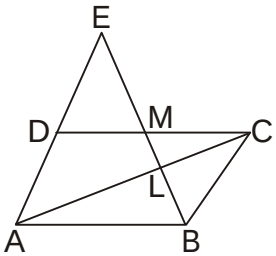
C.I.	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
f	7	10	15	8	10

33) The ages of Kavya and Karthik are 11 years and 14 years. In how many years will the product of their ages be 304.

OR

A motor boat whose speed is 15km/hr in still water goes 30 km down stream and comes back in a total of a 4 hours 30 minutes. Determine the speed of the stream.

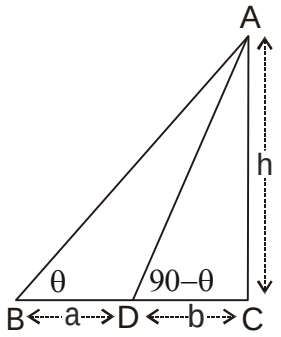
34) Through the mid point M of the sides of a Parallelogram ABCD, the line BM is drawn intersecting AC at L and AD Produced at E. Prove that EL = 2BL.



OR

Prove that any two medians of a triangle divide each other in the ratio 2 : 1.

35) The angle of elevation of the top of a tower of height **"h"** meters from two points at a distance of **"a"** and **"b"** meters from the base, and in the same straight line with it are complementary. Prove that the height of the tower is $\sqrt{ab}$ meters.



OR

Prove that $\frac{\sin\theta}{1+\cos\theta} + \frac{1+\cos\theta}{\sin\theta}$ = 2 cosee θ.

36) Prove that the tangents drawn from an external point to a circle.

a) are equal.

b) subtend equal angles at the centre.

c) are equally inclined to the line joining the centre and the external point.

OR

If two circles touch each other externally the centres and the point of contact are collinear. Prove.

V. Answer the following questions ***(4 x 4 = 16)***

37) The sum of an infinite geometric progression is 15 and the sum of the squares of these terms is 45. Find the series.

OR

The common difference between any two consecutive interior angles of a Polygon is 5^0. If the smallest angle is 120^0. Find the number of sides of the Polygon ?

38) Solve Graphically: $x^2 - x - 2 = 0$.

39) "If the square on the longest side of a triangle is equal to the sum of the squares on the other two sides, then those two sides contain a right angle" Prove.

40) Draw two direct common tangents to two circles of radii 5cm and 3cm having their centre 11cm apart. Measure the length of D.C.T. and verify.

* * * * *

ªÀiÁzÀj ¥ÀæÀ±ÉßÀ¥ÀwæPÉ
10£ÉÃ vÀgÀUÀw
ವಿಷಯ: ಗಣಿತ

ಸಮಯ: 2 ಗಂಟೆ 45 ನಿಮಿಷಗಳು. ಗರಿಷ್ಠ ಅಂಕಗಳು: 80

I. PÉÆnÖgÀĪÀ ¥ÀæÀ±ÉßUÉ CxÀªÁ C¥ÀÆtð ºÉýPÉUÉ ®¨sÀåªÁ¢gÀĪÀ GvÀÛgÀUÀ¼À°è ¸ÀjAiÀiÁzÀ GvÀÛgÀªÀ£ÀÄß DjA¹, GvÀÛgÀzÀ PÀæªÀiÁPÀëgÀzÉÆA¢UÉ ¥ÀÆtð GvÀÛgÀªÀ£ÀÄß §gÉAiÀÄj. ***(1 x 8 = 8)***

1) UÀtÂvÀzÀ ªÀÄÆ® ¥ÀæªÉÄAiÀÄzÀ ¥ÀæPÁgÀ 2 DVzÀÝgÉ ªÀiÁvÀæ LzÀ£É ¥Àæ¸ÀÛgÀªÀÅ

(A) 5^2 (B) 2^5 (C) 10 (D) 15

2) $^nC_8 = {}^nC_{12}$ DzÁUÀ n£À ¨É¯ÉAiÀÄÄ

(A) 10 (B) 20 (C) 25 (D) 30

3) C¸ÀA¨sÀªÀ WÀl£ÉAiÀÄ ¸ÀA¨sÀªÀ¤AiÀÄvÉAiÀÄÄ

(A) 0 (B) 1 (C) 10 (D) 100

4) ¸ÀgÁ¸ÀjAiÀÄÄ $(\bar{x}) = 20$ ªÀÄvÀÄÛ ªÀåvÀåAiÀÄ UÀÄuÁAPÀªÀÅ 0.1 EzÀÝgÉ ªÀiÁ£ÀPÀ «ZÀ®£ÉAiÀÄÄ

(A) 2 (B) 0.2 (C) 20 (D) 0.02

5) $f(x) = x^2 + 7x - 10$ DzÁUÀ $f(2)$ £À ¨ÉÃ¯ÉAiÀÄÄ

(A) 3 (B) 5 (C) 8 (D) 10

6) $\tan x = \frac{7}{24}$ DzÀgÉ $\cot x$ UÉ ¸ÀªÀiÁzÀÄzÀÄ

(A) 7 (B) 24 (C) $\frac{7}{24}$ (D) $\frac{24}{7}$

7) (2, 3) ªÀÄvÀÄÛ (4, 7) ©AzÀÄUÀ¼À£ÀÄß ¸ÉÃj¸ÀĪÀ gÉÃSÁRAqÀzÀ ªÀÄzsÀå©AzÀÄ«£À ¤zÉÃð±ÁAPÀUÀ¼ÀÄ

(A) (3, 5) (B) (7, 3) (C) (3, 4) (D) (8, 3)

8) (3, -2) ªÀÄvÀÄÛ (4, 5) ©AzÀÄUÀ¼À£ÀÄß ¸ÉÃj¸ÀĪÀ gÉÃSÉAiÀÄ E½eÉAiÀÄÄ

(A) 3 (B) 5 (C) 7 (D) 8

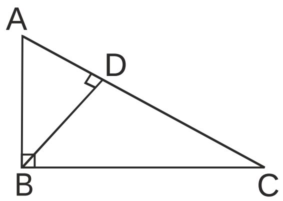
II. PÉÆnÖgÀĪÀ ¥ÀæÀ±ÉßUÉ GvÀÛj¹. ***(1 x 6 = 6)***

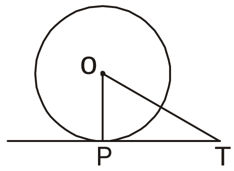
9) 6762 £ÀÄß C«¨sÁdå C¥ªÀvÀð£ÀUÀ¼À UÀÄt®§ÞªÁV ¤gÀÆ¦¹.

10) «±ÀéUÀt U = {1, 2, 3, 4, 5, 6, 7, 8} ªÀÄvÀÄÛ G¥ÀUÀt A = {1, 2, 3} DzÀgÉ A' PÀAqÀÄ» r¬Äj.

11) $x^2 + 2x + 1$ §ºÀÄ¥ÀzÉÆÃQAiÀÄ ±ÀÆ£ÀåvÉAiÀÄ£ÀÄß PÀAqÀÄ» r¬Äj.

12) ABC wæ¨sÀÄdzÀ°è ∠ABC = 90^0 ªÀÄvÀÄÛ BD ⊥ AC.
BD = 8 ¸ÉA«ÄÃ ªÀÄvÀÄÛ AD = 4 ¸ÉA«ÄÃ EzÀÝgÉ
CD AiÀÄ£ÀÄß PÀAqÀÄ» r¬Äj.





13) F avæ° 'O' ªÉvPÃAzæPT ¸±ðP ªÄvÄ
$\lfloor$PTQ = 30^0 Ezg $\lfloor$POT ª£Ä PAqÄ» r¬Äj.

14) 7¸A«ÄÃ wæªÀ¼ MAzÄ UÆÃ¼z ªÄÃ¯ÉÊ «¹Ãtðª£Ä PAqÄ» r¬Äj.

III. **PÉÆnÖgÀ¼À ¥Àæ±ÉßUÀ¼À GvÀÛgÀ¹.** ***(2 x 16 = 32)***

15) 5 - $\sqrt{3}$ MAzÄ C¨ÁU®§ ¸ASå JAzÄ ¸Á¢¹.

16) MAzÄ PÁ¯Ãf£° 60 «zÁyðUÀ¼Ä g¸ÁAiÀÄ£±Á¸ÀPÀ, 40 «zÁyðUÀ¼Ä ¨ËvÀ±Á¸ÀPÀ, 30 «zÁyðUÀ¼Ä fÃª±Á¸ÀPÀ, ªÄvÄ 15 «zÁyðUÀ¼Ä ¨Ëv±Á¸ ªÄvÄ g¸ÁAiÀÄ£±Á¸ÀPÀ, 10 «zÁyðUÀ¼Ä ¨Ëv±Á¸ ªÄvÄ fÃª±Á¸ÀPÀ ºÁUÆ 5 «zÁyðUÀ¼Ä fÃª±Á¸ ªÄvÄ ರಸಾಯನಶಾಸ್ತ್ರಕ್ಕೂ ನೋಂದಾಯಿಸಿದ್ದಾರೆ. ಯಾವ ವಿದ್ಯಾರ್ಥಿಯೂ ಮೂರು ವಿಷಯಗಳಲ್ಲಿ ನೋಂದಾಯಿಸಿಲ್ಲ. ಕನಿಷ್ಠ ಒಂದು ವಿಷಯದಲ್ಲಿ ಎಷ್ಟು ವಿದ್ಯಾರ್ಥಿಗಳು ನೋಂದಾಯಿಸಿದ್ದಾರೆ ಎಂಬುದನ್ನು PAqÄ» r¬Äj.

17) P¼V£ªÀUÀ¼£Ä PæªÀiÆÃd£UÀ¼Ä ªÄvÄ «P®UÀ¼ÁV «AUr¹.
a) ಐದು ವಿವಿಧ ವಿಷಯಗಳ ಪುಸ್ತಕಗಳನ್ನು ಒಂದು ಕಪಾಟಿನಲ್ಲಿ ಜೋಡಿಸಬೇಕಾಗಿದೆ.
b) 8 PÀaðUÀ¼° 8 ªÀQUÀ¼Ä PÀ½vÀPÆ¼ ¨ÃPÁVz.
c) 7 ¸z¸ÀjgÀª MAzÄ ¸«Äw¬ÄAz M§ CzÀPgÀ, M§ PÁAiÀÄðz²ð ºÁUÆ M§ ReÁAaAiÀÄ£Ä DAiÀÄ ªiÁq¨ÃPÁVz.
d) ªÉvÁPÁg QÃ° jAUï£° 5 QÃ°UÀ¼£Ä eÆÃr¸¨ÃPÁVz.

18) 6 ಪುರುಷರು ಮತ್ತು 4 ಮಹಿಳೆಯರಿಂದ 5 ಜನರ ಸಮಿತಿಯನ್ನು ರಚಿಸಬೇಕಾಗಿದೆ. ಕನಿಷ್ಠ ಇಬ್ಬರು ಮಹಿಳೆಯರಿರುವಂತೆ ಎಷ್ಟು ರೀತಿಯಲ್ಲಿ ಸಮಿತಿಯನ್ನು ರಚಿಸಬಹುದು ಕಂಡುಹಿಡಿಯಿರಿ.

19) bÃzª£Ä CPgtÃPj¹, ¸Ä®¨ gÆ¥P v¤ : $\dfrac{5\sqrt{2}-\sqrt{3}}{3\sqrt{2}-\sqrt{5}}$.

20) ¸APÃ¦¹ : $8\sqrt{\dfrac{1}{2}}-\dfrac{1}{2}\sqrt{8}$

21) $2x^3 + 3x^2 - 22x + 12$ ಕ್ಕೆ ಎಷ್ಟನ್ನು ಕೂಡಿದಾಗ ಬರುವ ಪದವು $2x^2 + 5x - 14$ ರಿಂದ ನಿಶ್ಶೇಷವಾಗಿ ¨ÁUªÁUÀvz ?

CxÀªÁ

P(x) = $x^2 + 4x + 4$ £Ä g(x) = $x + 2$ ¤Az ¨ÁV¹ ¨ÁUÁPÁgz C¯ÁjxA £Ä vÁ¼£ÆÃr.

22) ªÄÆgÄ ¸ASåUÀ¼Ä $\dfrac{1}{3}:\dfrac{1}{5}:\dfrac{1}{6}$ C£Ä¥Ávz°ª. CªÀU¼ ªUðU¼ ªÆvªÀ 644 Ezg, ¸ASåUÀ¼£Ä PAqÄ» r¬Äj.

23) tan θ . sin θ + cos θ = sec θ JAzÄ vÆÃj¹.

24) (2, 5) ªÄvÄ (x, - 7) ©AzÄU¼ £qÄ«£ zÆgª 13 ªiÁ£ DVzg "x" £ ¨¯AiÀÄ£Ä PAqÄ» r¬Äj.

25) 3.5¸A«ÄÃ wæªÀ¼ ªÉvª£Ä J¼¬Äj. Czg° 6¸A«ÄÃ GzÀz eÁª£Ä ga¹, PÃAzæAz eÁU EgÀª Cw Pr ªÄ zÆgª£Ä C¼v ªiÁr.

26) M§ ªÆÃf¤zÁg£ zÁR¯ ¥Ä¸P¢Az PÆngÀª zvÁA±U½U MAzÄ AiÆÃd£AiÀÄ£Ä vAiiÁj¹. (¥æªiÁt 20 «ÄÃlgï = 1¸A«ÄÃ)

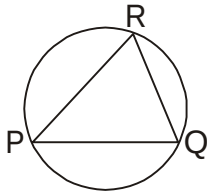
	«ÄÃlgïUÀ¼Ä DU	
	140	
	120 -------------	C U 60
E U 80 -------------	100	
	50 -------------	B U 40
	A ¬ÄAz	

27) MAzÄ W£ ¹°Aqgï£ ¥Ætð ªÄÃ¯ï£ «¹Ãtð 462 Zzg ¸A«ÄÃ. EzÄ, Czg ವಕ್ರಮೇಲ್ಮೈ ವಿಸ್ತೀರ್ಣವು, ಪೂರ್ಣಮೇಲ್ಮೈ ವಿಸ್ತೀರ್ಣದ ಮೂರನೇ ಒಂದರಷ್ಟು ಇದ್ದರೆ, ಸಿಲಿಂಡರ್‌ನ wædªÄ£Äß PAqÄ»r¬Äj.

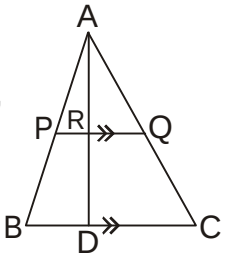
CxÀÁ

¥Ázz wæÆ 5 ¸A«ÄÃ ªÄvÄ Jvg 20 ¸A«ÄÃ EgÄª MAzÄ ªÉvPÁgz ¯ÆÃºz ±APÄª£Äß PgV¹, Cz£Äß UÆÃ¼ª£ÁV ¥jªwð¸¯ÁVz. ºÁUÁzg D UÆÃ¼z wædªÄ£Äß PAqÄ»r¬Äj.

28) ¥Pïz° PÆngÄª eÁ¯ÁPÉwU DAiÄgï£ ¸ÆvæÆ£Äß vÁ¼£ÆÃr.



29) ABC wæÄdz° PQ II BC.
AP = 3 ¸A«ÄÃ, AR = 4.5 ¸A«ÄÃ, AQ = 6 ¸A«ÄÃ,
AB = 5 ¸A«ÄÃ ªÄvÄ AC = 10 ¸A«ÄÃ Ezïg,
AD AiÄ Gzïª£Äß PAqÄ»r¬Äj.



30) MAzÄ aÃ®z°gÄª 27 ZAqÄU¼° P®ªÅ ©½ ªÄvÄ P®ªÅ PA¥Ä §tzÁVgÄvª. AiiÁzÉaïPªÁV MAzÄ ZAq£Äß vUAiÄ¨ÃPÁVz. PA¥Ä ZAq£Äß vUAiÄÄª ¸A¨ª¤ÃAiÄvAiÄÄ $\frac{2}{3}$ Dzg, ©½ §tz ZAq£Äß vUAiÄÄª ¸A¨ª¤ÃAiÄvAiÄ£Äß PAqÄ»r¬Äj.

IV. PÉÆÃ£À¥ÀæÉÃUÉGvÀÛ¹. ***(3 x 6 = 18)***

31) ¸ªiÁAvg ±ÆæAiÆAzg°, ªÄÆg£Ã ¥zªÅ 8 DVzÄ, MA¨v£Ã ¥zªÅ ªÄÆg£Ã ¥zz ಮೂರರಷ್ಟಕ್ಕಿಂತ 2 ಹೆಚ್ಚು ಇದೆ. ಅದರ ಮೊದಲ 19 ಪದಗಳ ಮೊತ್ತವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

32) P¼U PÆngÄª zvÁA±U½U ªiÁ£P «Z®£AiÄ£Äß PAqÄ»r¬Äj.

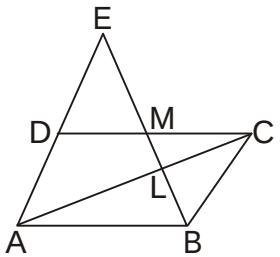
D ªUÁðAvg	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
Dªïw	7	10	15	8	10

33) ಕಾವ್ಯ ಮತ್ತು ಕಾರ್ತೀಕರ ವಯಸ್ಸು 11 ಮತ್ತು 14 ವರ್ಷಗಳು. ಇವರಿಬ್ಬರ ವಯಸ್ಸಿನ ಗುಣಲಬ್ಧವು 304 ವರ್ಷಗಳಾಗಲು ಎಷ್ಟು ವರ್ಷಗಳು ಬೇಕಾಗುತ್ತದೆ ಕಂಡುಹಿಡಿಯಿರಿ.

CxÀÁ

MAzÄ ªÆÃlgï zÆÃtAiÄ ªÃU¤±®¤Ãj£° 15 Q.«ÄÃ./UAmU¼ÁVª. D zÆÃtAiÄÄ 4 ಗಂಟೆ 30 ನಿಮಿಷಗಳಲ್ಲಿ ನದಿಯಲ್ಲಿ 30 ಕಿ.ಮೀ. ದೂರ ಕೆಳಕ್ಕೆ ಚಲಿಸಿ ಮತ್ತೆ ಮೊದಲಿನ ಸ್ಥಾನಕ್ಕೆ »A¢gÄVzg, £¢AiÄ ªÃUª£Äß PAqÄ»r¬Äj.

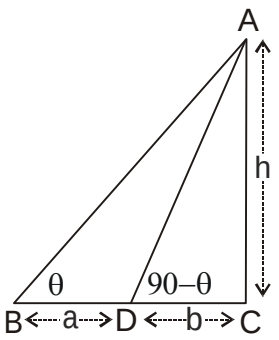
34) ABCD ¸ªiÁAvg ZvÄ¨ÄðdzÀ M JA§ÄzÄ CD AiÄ ªÄzï©AzÄªÁVz. M ªÄÆ®P J¼z BM gÃSAiÄÄ AC AiÄ£Äß L JA§°AiÄÆ ªÄvÄ AD AiÄ£Äß ªÉ¢¹zÁz E JA§°AiÄÆ bÃ¢¸ÄvÀz. EL = 2BL JAzÄ ¸Á¢¹.



CxÀÁ

wæÄdz AiiÁªÅzÃ JgqÄ ªÄzïgÃSU¼Ä ¥g¸g 2 : 1 g ¥ÆæiÁtz° bÃ¢¸ÄvÀª JAzÄ ¸Á¢¹.

35) **"h"** «ÄÃlgï Jvg«gÄª MAzÄ UÆÃ¥Ägz vÄ¢AiÄ£Ä¸ ¸ªÄv®¢Az UªÄ¤¹zÁU Czg ¥Áz¢Az **"a"** ªÄvÄ **"b"** zÆgU¼° GAlÄªiÁqÄª G£Ìv PÆÃ£U¼Ä PæÄªÁV ¥ÆgP PÆÃ£U¼Ázg UÆÃ¥Ägz Jvgª $\sqrt{ab}$ JAzÄ ¸Á¢¹.



CxÀÁ

$\frac{\sin\theta}{1+\cos\theta} + \frac{1+\cos\theta}{\sin\theta} = 2\,\text{cosec}\,\theta$ JAzÄ ¸Á¢¹.

36) ¨Áº¸ ©AzÄ«¤Az ªÈvP¸ J¼z ¸±ðPU¼Ä,

a) ¸ªÄªÁVgÄvª.

b) PÃAzæ° ¸ªÄ£Áz PÆÃ£U¼£Ä¸AlÄ ªiÁqÄvª.

c) PÃAzæªÄvÄ ¨Áº¸ ©AzÄª£Ä¸ ¸Ãj¸Äª gÃSAiÆq£ ¸ªÄ£Áz PÆÃ£U¼£Ä¸ GAlÄ ªiÁqÄvz JAzÄ ¸Á¢¹.

CxÀÁ

JgqÄ ªÈvU¼Ä ¥g¸g ¨Áº¸ªÁV ¸²ð¹zÁU CªÁU¼ ªÈvPÃAzæ¼Ä ªÄvÄ ¸±ð©AzÄªÇ KPgÃSÁUvªÁVgÄvª JAzÄ ¸Á¢¹.

v. PÉÆÃ£À¥ÀæÉÆÃUÉGvÀÛ¹. ***(4 x 4 = 16)***

37) MAzÄ C£Av UÄuÆÃvg ±ÃæAiÄ ªÆv 15 ªÄvÄ CªÁU¼ ¥zU¼ ªUðU¼ ªÆv 45 DVzg UÄuÆÃvg ±ÃæAiÄ£Ä¸ PAq»r¬Äj ?

CxÀÁ

MAzÄ §ºÄ¨ÄeÁPÈwAiÄ, AiiÁªÁzÃ JgqÄ C£ÄPæÄ M¼PÆÃ£U¼ ¸ÁªiÁ£¸ ªÈvÁ¸ 5 EzÄ, Cw aP¸ PÆÃ£ªÁ 120⁰ Ezg §ºÄ¨ÄeÁPÈwAiÄ ¨ÁºÄU¼£Ä¸ PAq»r¬Äj ?

38) £PAiÄ PæÄ¢Az ©r¹: $x^2 - x - 2 = 0$.

39) "MAzÄ wæÄdz Cw zÆq ¨ÁºÄ«£ ªÄÃ°£ ªUðªÁ G½zgqÄ ¨ÁºÄU¼ ªÄÃ°£ ªUðU¼ ªÆvP¸ ¸ªÄ£ÁVzg, D JgqÄ ¨ÁºÄU¼Ä ®A§PÆÃ£ª£Ä¸ ºÆA¢gÄvz" JAzÄ ¸Á¢¹.

40) PÃAzæ¼ £qÄ«£ CAvg 11 ¸A«ÄÃ EgÄª 5 ¸A«ÄÃ ªÄvÄ 3 ¸A«ÄÃ wæªÁ¼ JgqÄ ªÈvU½U £Ãg ¸ÁªiÁ£¸ ¸±ðPU¼£Ä¸ ga¹, CªÁU¼ Gzª£Ä¸ C¼v ªiÁr vÁ¼ £ÆÃr.

* * * * *

J¸ï.J¸ï.J¯ï.¹. ¥ÀjÃPÉëiÀÄ ¥Àæ±ÉßàwæPÉAiÀÄ ªÀiÁzÀj

UÀtÂvÀ

DAiÀÄ ªÀiÁ - 1

ವಿಷಯಕ್ಕೆ ನೀಡಿರುವ ಪ್ರಾಮುಖ್ಯತೆ

PÀæªÀÄ ¸ÀASÉå	ವಿಷಯ	CAPÀUÀ¼ÀÄ
1.	ªÁ¸ÀÛª ¸ÀASÉåUÀ¼ÀÄ	03
2.	UÀtUÀ¼ÀÄ	03
3.*	±ÉæÃrüUÀ¼ÀÄ	08
4.*	PÀæªÀÄAiÉÆÃd£É ªÀÄvÀÄ «PÀ®UÀ¼ÀÄ	05
5.	¸ÀA¨sÀªÀ¤ÃAiÀÄv	03
6.	¸ÀASÁå±Á¸ÀÛç	04
7.	PÀgÀtUÀ¼ÀÄ	04
8.*	§ºÀÄ¥ÀzÉÆÃQUÀ¼ÀÄ	04
9.*	ªÀUÀð ¸«ÄÃPÀgÀtUÀ¼ÀÄ	09
10.*	¸ÀªÀÄgÀÆ¥À wæ¨sÀÄdUÀ¼ÀÄ	06
11.*	¥ÉÊxÁUÉÆgÀ¸ï ¥ÀæªÉÄÃAiÀÄ	04
12.*	wæPÉÆÃ£«Äw	06
13.	¤zÉðÃ±ÁAP gÉÃSÁUÀtÂv	04
14.*	ªÀÈv - eÁå ÛUÀ¼À ®PÀëtUÀ¼ÀÄ ªÀÄvÀÄ ¸Àà±ÀðPÀ UÀ¼À ®PÀëtUÀ¼ÀÄ	10
15.*	PÁvÀ¼ÀvÀ	05
16.	£PÉë ªÀÄvÀÄ §ºÀÄªÀÄÄR WÀ£ÁPÈw	02
MlÄÖ		**80**

DAiÀÄ ªÀÄ - 2

ಉದ್ದಿಷ್ಟಗಳಿಗೆ ಪ್ರಾಮುಖ್ಯತೆ

PÀæªÀÄ ¸ÀASÉ	ಉದ್ದಿಷ್ಟಗಳು	±ÉÃPÀqÁ CAPÀUÀ¼ÀÄ
1.	¸ÀgÀ	10%
2.	w¼ÀÄªÀ½P	55%
3.	ಅನ್ವಯಿಸುವಿಕೆ (ವಿಶ್ಲೇಷಣೆ ಸಹಿತ)	20%
4.	PËª®	15%
	MlÄ	**100%**

DAiÀÄ ªÀÄ - 2

GzÉÝÃ±ÀUÀ¼ÀÄ ªÀÄvÀÄÛ ¥Àæ±ÉßUÀ¼À «AUÀqÀuÉ

ಉದ್ದಿಷ್ಟಗಳು	§ºÀÄ DAiÉÌ ¥Àæ±ÉßUÀ¼ÀÄ	®WÀÄ GvÀÛgÀ ¥Àæ±ÉßUÀ¼ÀÄ 1 CAPÀ	®WÀÄ GvÀÛgÀ ¥Àæ±ÉßUÀ¼ÀÄ 2 CAPÀUÀ¼ÀÄ	¢ÃWÀð GvÀÛgÀ ¥Àæ±ÉßUÀ¼ÀÄ 3 CAPÀUÀ¼ÀÄ	¢ÃWÀð GvÀÛgÀ ¥Àæ±ÉßUÀ¼ÀÄ 4 CAPÀUÀ¼ÀÄ	MlÄÖ CAPÀUÀ¼ÀÄ	±ÉÃPÀqÁ
¸ÀgÀ	1 x 2 = 2	1 x 4 = 4	2 x 1 = 2	-	-	08	10%
w¼ÀÄªÀ½P	1 x 6 = 6	1 x 2 = 2	2 x 10 = 20	3 x 4 = 12	4 x 1 = 1	44	55%
ಅನ್ವಯಿಸುವಿಕೆ (ವಿಶ್ಲೇಷಣೆ ಸಹಿತ)	-	-	2 x 3 = 6	3 x 2 = 6	4 x 1 = 4	16	20%
PËª®	-	-	2 x 2 = 4	-	4 x 2 = 8	12	15%
MlÄ	**1 x 8 = 8**	**1 x 6 = 6**	**2 x 16 = 32**	**3 x 6 = 18**	**4 x 4 = 16**	**80**	**100%**

DAiÀÄ ªÀÄ- 3

¥Àæ±ÉßAiÀÄ ¸ÀégÀÆ¥À ºÁUÀÆ CAPÀUÀ¼À ºÀAaPÉ

PÀæªÀÄ ¸ÀASÉå	¥Àæ±ÉßAiÀÄ ¸ÀégÀÆ¥À	¥Àæ±ÉßUÀ¼À ¸ÀASÉå	CAPÀUÀ¼ÀÄ
1.	§ºÀÄ DAiÀÄÌAiÀÄ ¥Àæ±ÉßUÀ¼ÀÄ	08	08
2.	®WÀÄ GvÀÛgÀ ¥Àæ±ÉßUÀ¼ÀÄ (1 CAP)	06	06
3.	®WÀÄ GvÀÛgÀ ¥Àæ±ÉßUÀ¼ÀÄ (2 CAPUÀ¼ÀÄ)	16	32
4.	¢ÃWÀð GvÀÛgÀ ¥Àæ±ÉßUÀ¼ÀÄ (3 CAPUÀ¼ÀÄ)	06	18
5.	¢ÃWÀð GvÀÛgÀ ¥Àæ±ÉßUÀ¼ÀÄ (4 CAPUÀ¼ÀÄ)	04	16
MlÄÖ		**40**	**80**

DAiÀÄ ªÀÄ- 3

PÀpt vÉ ªÀÄlÖ

¸ÀÄ®¨sÀ	30%
¸ÁªÀiÁ£Àå	50%
PÀpt	20%

ಅವಧಿ : 2 ಗಂಟೆ ಮತ್ತು 45 ನಿಮಿಷ

CAPU¼Ä : 80

10£Éà vÀgÀUÀw UÀtÂvÀ

PÉÃgï ¸ÀªÀÄ ¥À±ÉßUÀ¼À £ÀPÉë

PÀæ ¸ÀA	¥ÀjZÉÒÃzÀ / WÀlPÀ	¸ÀgÀ¼À					w¼ÀÄªÀ½PÉ					ಅನ್ವಯಿಸುವಿಕೆ (ವಿಶ್ಲೇಷಣೆ ಸಹಿತ)					PË±À®					MlÄÖ	
		§.D.	®.G1	®.G2	¢ÃG3	¢ÃG4	§.D.	®.G1	®.G2	¢ÃG3	¢ÃG4	§.D.	®.G1	®.G2	¢ÃG3	¢ÃG4	§.D.	®.G1	®.G2	¢ÃG3	¢ÃG4	CAPU¼ÀÄ	¥À±ÉßUÀ¼ÀÄ
			1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		
1.	ªÁ¸ÀªÀ ¸ASÉåU¼À	-	1(1)	-	-	-	-	-	2(1)	-	-	-	-	-	-	-	-	-	-	-	-	3	2
2.	U t U¼Ä	-	1(1)	-	-	-	-	-	-	-	-	-	-	2(1)	-	-	-	-	-	-	-	3	2
*3.	±ÃæÃt U¼Ä	-	-	-	-	-	1(1)	-	-	3(1)	-	-	-	-	-	4(1)*	-	-	-	-	-	8	3
*4.	PÁæAiÆÃd£ ªÄvÄ «P®U¼Ä	-	-	2(1)	-	-	1(1)	-	2(1)	-	-	-	-	-	-	-	-	-	-	-	-	5	3
5.	¸A¨ªÃ¤ÃAiÄv	-	-	-	-	-	1(1)	-	-	-	-	-	-	2(1)	-	-	-	-	-	-	-	3	2
6.	¸ASÁå ±Á¸	-	-	-	-	-	1(1)	-	-	3(1)	-	-	-	-	-	-	-	-	-	-	-	4	2
7.	Pg t U¼Ä	-	-	-	-	-	-	-	2(2)	-	-	-	-	-	-	-	-	-	-	-	-	4	2
*8.	§ ºÄ¥zÆÃQU¼Ä	-	1(1)	-	-	-	1(1)	-	**2(1)***	-	-	-	-	-	-	-	-	-	-	-	-	4	3
*9.	ªUð ¸«ÄÃPg t U¼Ä	-	-	-	-	-	-	-	-	**3(1)***	-	-	-	2(1)	-	-	-	-	-	-	4(1)	9	3
*10.	¸ªÄgÆ¥ wæÄdU¼Ä	-	-	-	-	-	-	1(1)	2(1)	-	-	-	-	-	**3(1)***	-	-	-	-	-	-	6	3
*11.	¥ÌxÁUÆg¸ï ¥æÄÃAiÄ	-	-	-	-	-	-	-	-	-	4(1)	-	-	-	-	-	-	-	-	-	-	4	1
*12.	wæÆÃ£«Äw	1(1)	-	-	-	-	-	-	2(1)	-	-	-	-	-	**3(1)***	-	-	-	-	-	-	6	3
13.	¤zðÃ±ÁAP gÃSÁU t v	1(1)	-	-	-	-	1(1)	-	2(1)	-	-	-	-	-	-	-	-	-	-	-	-	4	3

ಅವಧಿ : 2 ಗಂಟೆ ಮತ್ತು 45 ನಿಮಿಷ

CAPÀUÀ¼ÀÄ : 80

10£Éà vÀgÀUÀw UÀtÂvÀ

PÉÆÃgï ¸ÀAzÀ±Àð ¥Àæ±Éß¥ÀwæPÉAiÀÄ £ÀPÉë

PÀæ ¸ÀA	¥ÀæPÀgÀt / WÀlPÀ	¸ÀägÀuÉ					w½ÃªÀ½PÉ					ಅನ್ವಯಿಸುವಿಕೆ (ವಿಶ್ಲೇಷಣೆ ಸಹಿತ)					PË±À®					MlÄÖ	
		§.D.	®.G1	®.G2	¢.G3	¢.G4	§.D.	®.G1	®.G2	¢.G3	¢.G4	§.D.	®.G1	®.G2	¢.G3	¢.G4	§.D.	®.G1	®.G2	¢.G3	¢.G4	CAPÀUÀ¼ÀÄ	¥Àæ±ÉßUÀ¼ÀÄ
			1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		
*14.	ªÀÈvÀÛ - eÁå ªÀÄvÀÄÛ ¸ÀàµÀðPÀ UÉgÉUÀ¼ÀÄ ªÀÄvÀÄÛ ¸À¢ðPÀ UÉgÉUÀ¼ÀÄ	-	1(1)	-	-	-	-	-	-	3(1)*	-	-	-	-	-	-	-	-	2(1)	-	4(1)	10	4
*15.	PÁvÀðÉÃµÀt	-	-	-	-	-	-	1(1)	2(1)*	-	-	-	-	-	-	-	-	-	2(1)	-	-	5	3
16.	£ÉÊeÁ ªÀÄvÀÄÛ §ºÀÄ¥ÀzÀUÀ¼À WÀ£ÁPÀÈw	-	-	-	-	-	-	-	2(1)	-	-	-	-	-	-	-	-	-	-	-	-	2	1
	MlÄÖ	2(2)	4(4)	2(1)	-	-	6(6)	2(2)	20(10)	12(4)	4(1)	-	-	6(3)	6(2)	4(1)	-	-	4(2)	-	8(2)	80	40

¸ÀÆZÀ£É- * DAvjP DAiÉÄUÀ¼À WÀlPÀU¼À£ÀÄß ¸ÀÆa¸ÀÄvÀz.

(i) Dªgtz ºÆgV£ ¸ASÉåUÀ¼ÀÄ CAPÀUÀ¼À£ÀÄß ¸ÀÆa¸ÀÄvÀª.

(ii) Dªgtz M¼U EgÀª ¸ASÉåUÀ¼ÀÄ ¥Àæ±ÉßUÀ¼À£ÀÄß ¸ÀÆa¸ÀÄvÀª.

(iii) ಆಂತರಿಕ ಪ್ರಶ್ನೆಗಳನ್ನು ಈ ಘಟಕಗಳಿಂದ ಕೇಳಬೇಕು. ಕಾರಣ ಅವು ಹೆಚ್ಚುವರಿ ವಿಷಯಗಳನ್ನು ಒಳಗೊಂಡಿರುತ್ತದೆ. 2, 3, ಮತ್ತು 4 CAPÀU¼À ¥Àæ±ÉßUÀ¼À£ÀÄß PÀ¼À¨ÁPÀÄ. WÀlPÀU¼À ¸ASÉåAiÀÄÄ 3, 4, 8, 9, 10, 11, 12, 15 ªÀÄvÀÄÛ 16 DVgÀÄvÀz.

(iv) ¥Àæ±ÉßAiÀÄ ªÀÄÄÃ°£ ¥Àæ±ÉßUÀ¼À£ÀÄß PÀ¼ÀÄºÀÄªÁU DAiÉÄAiÀÄ ¥Àæ±ÉßUÀ¼ÀÄ ¥Àæ±ÉßAiÀÄ «¯ÉÃªÀÄzÀ°£ CxÀªÁ G¥À¥Àæ±ÉßAiÀÄz ಮೇಲಿನದ್ದಾಗಿರಬೇಕು. ಹಾಗೂ ಅದೇ ಉದ್ದಿಷ್ಟಗಳಿಗೆ ಪ್ರಾಮುಖ್ಯತೆ ಹೊಂದಿರಬೇಕು.

(v) ¥Àæ±ÉßAiÀÄ DzÁjvÀ vÁQðP ¸ÀªÀÄ¸ÉåUÀ¼ÀÄ CxÀªÁ «¯ÉÃªÀÄ CxÀªÁ G¥À¥Àæ±ÉßAiÀÄz ¥Àæ±ÉßUÀ¼ÀÄ CzÀÃ ¥Àæ±ÉßAiÀÄPÉÌ ಸಂಬಂಧಿಸಿರಬೇಕು. ಹಾಗೂ ಅದೇ ಉದ್ದಿಷ್ಟಗಳಿಗೆ ಪ್ರಾಮುಖ್ಯತೆ ಹೊಂದಿರಬೇಕು.

Design of the Question Paper for S.S.L.C. Examination

MATHEMATICS

DIMENSION - 1

WEIGHTAGE TO CONTENT

Sl. No.	Units	Marks
I.	Real Numbers	03
2.	Sets	03
3.*	Progressions	08
4.*	Permutations and Combinations	05
5.	Probability	03
6.	Statistics	04
7.	Surds	04
8.*	Polynomials	04
9.*	Quadratic Equations	09
I0.*	Similar Triangles	06
1I.*	Pythagoras Theorem	04
I2.*	Trigonomentry	06
I3.	Co-ordinate Geometry	04
I4.*	Circle - ChordProperties and Tangent Properties	10
I5.*	Mensuration	05
I6.	Graphs and Polyhedra	02
Total		**80**

DIMENSION - 2

WEIGHTAGE TO OBJECTIVES

Sl. No.	Objectives	% Marks
I.	Remembering	10%
2.	Understanding	55%
3.	Applying (Including Analysis)	20%
4.	Skill	15%
Total		**100%**

DIMENSION - 2

WEIGHTAGE TO OBJECTIVES

Objectives	MCQs 1 Mark	1 Mark Question	S.A. 2 Marks	L.A. 3 Marks	L.A. 4 Marks	Total Marks	Percentage
Remembering	1 x 2 = 2	1 x 4 = 4	2 x 1 = 2	-	-	08	10%
Understanding	1 x 6 = 6	1 x 2 = 2	2 x 10 = 20	3 x 4 = 12	4 x 1 = 4	44	55%
Applying (Including Analysis)	-	-	2 x 3 = 6	3 x 2 = 6	4 x 1 = 4	16	20%
Skill	-	-	2 x 2 = 4	-	4 x 2 = 8	12	15%
Total	**1 x 8 = 8**	**1 x 6 = 6**	**2 x 16 = 32**	**3 x 6 = 18**	**4 x 4 = 16**	**80**	**100%**

DIMENSION - 3

WEIGHTAGE TO FORM OF QUESTIONS

Sl. No.	Type of Questions	No. of Questions	Marks
I.	M.C. Questions	08	08
2.	Short Answer Type (1 Mark)	06	06
3.	Short Answer Type (2 Marks)	16	32
4.	Long Answer Type (3 Marks)	06	18
5.	Long Answer Type (4 Marks)	04	16
Total		**40**	**80**

DIMENSION - 3

ESTIMATED DIFFICULTY LEVEL

Easy	30%
Average	50%
Difficult	20%

Time : 2 Hours and 45 Minutes

Marks : 80

10th STANDARD MATHEMATICS

CORE SUBJECT BLUE PRINT

Sl. No.	Content / Unit	REMEMBERING					UNDERSTANDING					APPLYING (INCLUDING ANALYSIS)					SKILL					TOTAL	
		MCQ	1	2	3	4	MCQ	1	2	3	4	MCQ	1	2	3	4	MCQ	1	2	3	4	Marks	No. of Questions
			S.A.1	S.A.2	L.A.3	L.A.4		S.A.1	S.A.2	L.A.3	L.A.4		S.A.1	S.A.2	L.A.3	L.A.4		S.A.1	S.A.2	L.A.3	L.A.4		
1.	Real Numbers	-	1(1)	-	-	-	-	-	2(1)	-	-	-	-	-	-	-	-	-	-	-	-	3	2
2.	Sets	-	1(1)	-	-	-	-	-	-	-	-	-	-	2(1)	-	-	-	-	-	-	-	3	2
3.*	Progressions	-	-	-	-	-	1(1)	-	-	3(1)	-	-	-	-	-	**4(1)***	-	-	-	-	-	8	3
4.*	Permutations & Combinations	-	-	2(1)	-	-	1(1)	-	2(1)	-	-	-	-	-	-	-	-	-	-	-	-	5	3
5.	Probability	-	-	-	-	-	1(1)	-	-	-	-	-	-	2(1)	-	-	-	-	-	-	-	3	2
6.	Statistics	-	-	-	-	-	1(1)	-	-	3(1)	-	-	-	-	-	-	-	-	-	-	-	4	2
7.	Surds	-	-	-	-	-	-	-	2(2)	-	-	-	-	-	-	-	-	-	-	-	-	4	2
8.*	Polynomials	-	1(1)	-	-	-	1(1)	-	**2(1)***	-	-	-	-	-	-	-	-	-	-	-	-	4	3
9.*	Quadratic Equations	-	-	-	-	-	-	-	-	**3(1)***	-	-	-	2(1)	-	-	-	-	-	-	4(1)	9	3
10.*	Similar Triangles	-	-	-	-	-	-	1(1)	2(1)	-	-	-	-	-	**3(1)***	-	-	-	-	-	-	6	3
11.*	Pythagoras Theorem	-	-	-	-	-	-	-	-	-	4(1)	-	-	-	-	-	-	-	-	-	-	4	1
12.*	Trigonomentry	1(1)	-	-	-	-	-	-	2(1)	-	-	-	-	-	**3(1)***	-	-	-	-	-	-	6	3
13.	Co-ordinate Geometry	1(1)	-	-	-	-	1(1)	-	2(1)	-	-	-	-	-	-	-	-	-	-	-	-	4	3

Time : 2 Hours and 45 Minutes

Marks : 80

10th STANDARD MATHEMATICS

CORE SUBJECT BLUE PRINT

Sl. No.	Content / Unit	REMEMBERING					UNDERSTANDING					APPLYING (INCLUDING ANALYSIS)					SKILL					TOTAL	
		MCQ	1 S.A.1	2 S.A.2	3 L.A.3	4 L.A.4	MCQ	1 S.A.1	2 S.A.2	3 L.A.3	4 L.A.4	MCQ	1 S.A.1	2 S.A.2	3 L.A.3	4 L.A.4	MCQ	1 S.A.1	2 S.A.2	3 L.A.3	4 L.A.4	Marks	No. of Questions
14.*	Circle - Chord Properties and Tangent Properties	-	1(1)	-	-	-	-	-	-	3(1)*	-	-	-	-	-	-	-	-	2(1)	-	4(1)	10	4
15.*	Mensuration	-	-	-	-	-	-	1(1)	2(1)*	-	-	-	-	-	-	-	-	-	2(1)	-	-	5	3
16.	Graphs and Polyhedra	-	-	-	-	-	-	-	2(1)	-	-	-	-	-	-	-	-	-	-	-	-	2	1
Total		**2(2)**	**4(4)**	**2(1)**	**-**	**-**	**6(6)**	**2(2)**	**20(10)**	**12(4)**	**4(1)**	**-**	**-**	**6(3)**	**6(2)**	**4(1)**	**-**	**-**	**4(2)**	**-**	**8(2)**	**80**	**40**

KEY :- * Indicates Internal Choice Questions Unit

NOTE :- (i) Numbers outside the bracket indicates Marks.
(ii) Numbers inside the bracket indicates Questions.
(iii) Internal choice to Questions to be given the following Units, which are comparitively have more contents for 2, 3, and 4 Marks. The Units are 3, 4, 8, 9, 10, 11, 12, 15 and 16.
(iv) In case of Questions on proving theorems, the Choice Questions can be the converse of the theorems OR Corollary having equal weightage in marks.
(v) In case of Questions on Riders based on theorems, choice Questions to be the Riders based on the same theorem OR Converse or Corollary.