Goa Board of Secondary & Higher Secondary Education, Alto, Betim - Goa

BLUE PRINT OF FIRST TERM EXAMINATION

Std: IX Sub: MATHEMATICS Maximum Marks: 80 Time: 2½ hours

OBJECTIVE	KNOWLEDGE				UNDERSTANDING				APPLICATION				SKILL				TOTAL
CONTENT AREA	VSA	SA1	SA2	LA	VSA	SA1	SA2	LA	VSA	SA1	SA2	LA	VSA	SA1	SA2	LA	
1. Number System	1(1)	1(1)	1(2)			1(1)	2(2)									1(3)	12
2. Polynomials	1(1)	1(1)	2(2)	1(3)	1(1)	2(1)	2(2)					1(4)					20
6. Lines and Angles			2(2)			1(1)					1(2)	1(3)					10
7. Triangles	1(1)	1(1)						1(3)	1(1)			1(4)					10
8. Quadrilaterals							1(2)		1(1)			2(3)					09
11. Constructions														2(1)		1(4) 1(3)	09
Financial Education	1(1)	1(1)				2(1)				1(1)	1(2)	1(3)					10
TOTAL	04	04	10	03	01	06	10	03	02	01	04	20		02		10	80
TOTAL MARKS	**21**				**20**				**27**				**12**				**80**

- Numbers in the brackets indicate marks
- Numbers outside the brackets indicate number of questions

DESIGN OF THE QUESTION PAPER
FIRST TERM EXAMINATION

2017-18 onwards

Std : IX **Sub : MATHEMATICS** **Max. Marks : 80** **Time: 2½ Hrs**

The weightage or the distribution of marks over different dimensions of the question paper shall be as follows:

1. Weightage to learning outcomes

Sr. No.	Learning outcomes	Marks	Percentage of marks
1	Knowledge	21	26.25 %
2	Understanding	20	25.00 %
3	Application	27	33.75 %
4	Skill	12	15.00 %
	Total	80	100.00 %

2. Weightage to content / Subject Units

Chapter No.	Name of the chapter	Marks
1	NUMBER SYSTEM	12
2	POLYNOMIALS	20
6	LINES AND ANGLES	10
7	TRIANGLES	10
8	QUADRILATERALS	09
11	CONSTRUCTIONS	09
	FINANCIAL EDUCATION	10
	NB. Since chapter 3 on Coordinate Geometry is deleted the knowledge of Abscissa & Ordinate to be imparted under the Chapter 4. Linear equations in two variables.	
	Total	**80**

3. Weightage to forms of questions

Sr. No.	Form of Questions	Marks for each Question	Number of Questions	Total Marks
1	Long answer type (LA)	03/04	08/03	36
2	Short answer type (SA-I)	01	13	13
3	Short answer type (SA-II)	02	12	24
4	Very short answer type (VSA)	01	07	07
			Total	**80**

The expected time for different types of questions would be as follows.

Sr. No.	Form of Questions	Approx. time for each question in minutes (t)	Number of Questions (n)	Approx. time for each form question in minutes (n x t)
1	Long answer type (LA)	05/07	08/03	61
2	Short answer type (SA-I)	02	13	26
3	Short answer type (SA-II)	04	12	48
4	Very short answer type (VSA)	01	07	07
			Total	142 Min.

4. Scheme of Option.

(There will be no overall choice. However, there may be an internal choice)

5. Weightage to difficulty level of questions:

Sr. No.	Estimated difficulty level of questions	Marks	Percentage
1	Easy	09	11.25 %
2	Average	55	68.75 %
3	Difficult	16	20.00 %
	Total	80	100.00 %

6. Number of main questions :

There will be 8 main questions, each main question of 10 marks.

DESIGN OF THE QUESTION PAPER
FIRST MID TERM EXAMINATION

2017-18 onwards

Std: IX **Sub: MATHEMATICS** **Max. Marks : 20** **Time: 1 Hr**

The weightage or the distribution of marks over different dimensions of the question paper shall be as follows:

1. Weightage to learning outcomes

Sr. No.	Learning outcomes	Marks	Percentage of marks
1	Knowledge	04	20 %
2	Understanding	04	20 %
3	Application	06	30 %
4	Skill	06	30 %
	Total	20	100 %

2. Weightage to content / Subject Units

Chapter No.	Name of the chapter	Marks
1	NUMBER SYSTEM	06
6	LINES AND ANGLES	08
11	CONSTRUCTIONS	06
	Total	20

3. Weightage to forms of questions

Sr. No.	Form of Questions	Marks for each Question	Number of Questions	Total Marks
1	Long answer type (LA)			
2	Short answer type (SA-I)			
3	Short answer type (SA-II)			
4	Very short answer type (VSA)			

The expected time for different types of questions would be as follows.

Sr. No.	Form of Questions	Approx. time for each question in minutes (t)	Number of Questions (n)	Approx. time for each form question in minutes (n x t)
1	Long answer type (LA)			
2	Short answer type (SA-I)			
3	Short answer type (SA-II)			
4	Very short answer type (VSA)			

4. Scheme of Option.

(There will be no overall choice. However, there may be an internal choice)

5. Weightage to difficulty level of questions:

Sr. No.	Estimated difficulty level of questions	Marks	Percentage
1	Easy		
2	Average		
3	Difficult		

6. Number of main questions :

There will be 2 main questions, each main question of 10 marks.

FIRST TERMINAL EXAMINATION

SUB: MATHEMATICS STD - IX MARKS: 80 TIME: 2½ Hrs

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Q 1. A] Select and write the most appropriate alternative from those given in the brackets. –(1)

The only irrational number of the following is _____

[$\frac{7}{2}$, $\sqrt{225}$, $\sqrt{75}$, 0.72]

B] Attempt the following. –(2)

(i) Find the value of: $(125)^{\frac{3}{2}}$

(ii) Express $\frac{16}{11}$ in the decimal form.

C] Represent $\sqrt{3}$ on a number line. –(3)

D] (i) Express 0.27 in the form $\frac{p}{q}$ where p and q are integers, $q \neq 0$ –(2)

(ii) Simplify: $(\sqrt{3} + \sqrt{7})^2$ –(2)

Q 2. A] Select and write the most appropriate alternative from those given in the brackets. –(1)

The degree of the polynomial $7x^5 - 2x^3 + 9$ is _____

[-2, 3, 5, 9]

B] Evaluate using suitable identity –(2)

(ii) 97 x 103

C] Attempt the following. –(3)

(i) Find the value of polynomial $4x^2 - 9x + 2$ at x = -3

(ii) Verify whether y = 2 is a zero of the polynomial 3y + 7

(iii) Expand using suitable identity: (3x + 2y) (3x – 2y)

D] (i) Factorise: $3x^2 + 10x + 8$ (by splitting the middle term) –(2)

(ii) Find the value of 'k' if (x – 1) is a factor of $2x^3 - 5x^2 + 8x + k$ –(2)

Q 3. A] Select and write the most appropriate alternative from those given in the brackets. –(1)

The coefficient of x^2 term in $4x - x^2 + 5x^4$ is _____

[-1, 1, 0, 4]

B] Using remainder theorem find the remainder when the polynomial $4x^3 - 3x^2 + 2x + 1$ is divided by x – 1 –(2)

C] Attempt the following. –(3)

(i) Factorise: $a^3 + 27b^3 + 9a^2b + 27ab^2$

(ii) Expand: $(2a - b + c)^2$

D] Divide the polynomial $P(x) = 2x^3 + 9x^2 + x - 15$ by $g(x) = 2x + 3$ and find the quotient and remainder. Hence write your answer in the form:

Dividend = Divisor x Quotient + Remainder –(4)

Q 4. A] Select and write the most appropriate alternative from those given in the brackets. –(1)

∠ A and ∠ B forms a linear pair such that ∠ A = 2x + 7 and ∠ B = 3x + 3 then the value of X is _____

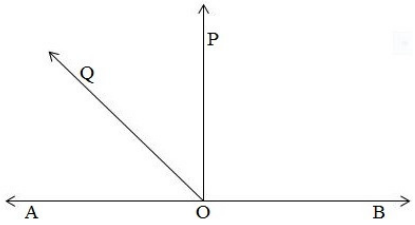
[34°, 36°, 90°, 180°]

B] Rationalise the denominator of the following. –(2)

$\frac{10}{\sqrt{5}-\sqrt{3}}$

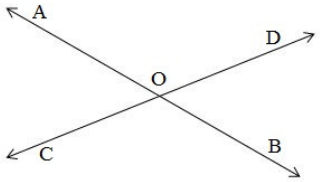
C] In the figure given below AOB is a line. Ray OP ⊥ line AB. Another ray OQ lies between rays OA and OP

Prove that: ∠ POQ = $\frac{1}{2}$ (∠ BOQ – ∠ AOQ) –(3)



D] (i) Given: Line AB and line CD intersect at point O.

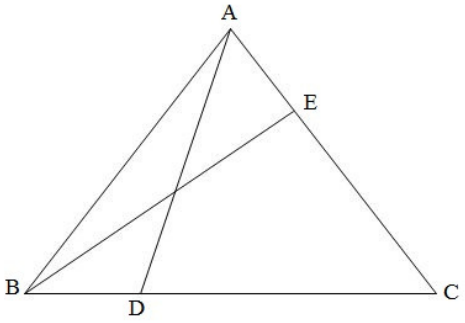
Prove that: ∠ AOC = ∠ DOB –(2)



(ii) In the figure given below BE ⊥ AC , ∠ EBC = 40°, ∠ ADC = 85° –(2)

Find: (a) ∠ ACB

(b) ∠ CAD



Q 5. A] Select and write the most appropriate alternative from those given in the brackets. –(1)

In Δ ABC, AB = AC and ∠ A = 80° then ∠ C = _____

[10°, 40°, 50°, 100°]

B] Using a pair of compasses and a ruler construct $\angle XYZ = 75^\circ$ –(2)

C] Construct Δ PQR in which $\angle Q = 60^\circ$, QR = 7.5 cm and PQ + QR = 12 cm. –(3)

D] Construct Δ PBM in which $\angle B = 30^\circ$, $\angle M = 90^\circ$ and PB + BM + PM = 13 cm. –(4)

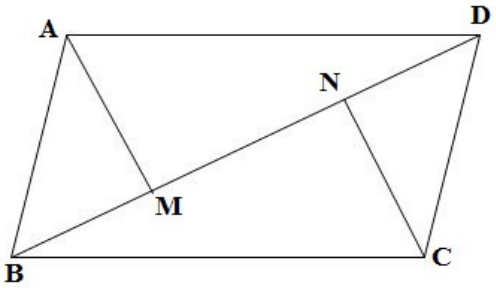
Q 6. A] Select and write the most appropriate alternative from those given in the brackets. –(1)

The angles of a quadrilateral are in the ratio 3:4:5:6, then the measure of the smallest angle is _____°

[15, 30, 60, 90]

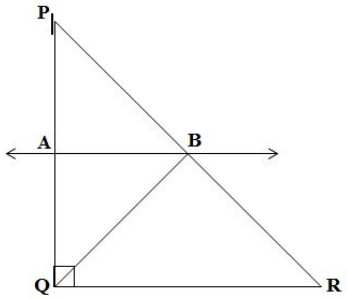
B] Given: ABCD is a parallelogram. AM and CN are perpendiculars drawn from vertices A and C on diagonal BD.

Show that: Δ AMD ≅ Δ CNB –(2)

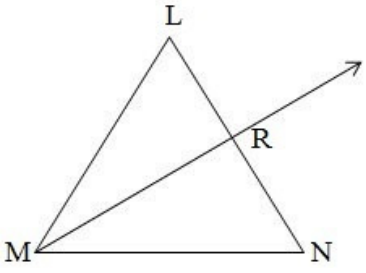


C] Given: PQR is a triangle right angled at Q. A line drawn through the midpoint B of hypotenuse PR and parallel to QR intersects at A.

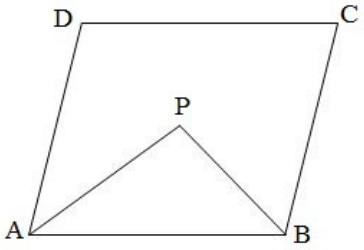
Show that: BQ = $\frac{1}{2}$ PR –(3)



D] (i) In Δ LMN, MR is perpendicular bisector of LN. State the test by which Δ LMR and Δ NMR are congruent. –(1)

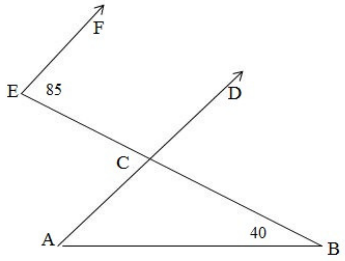


(ii) In parallelogram ABCD bisectors of $\angle A$ and $\angle B$ intersect at P.
Prove that: m $\angle APB = 90^{\circ}$ –(3)

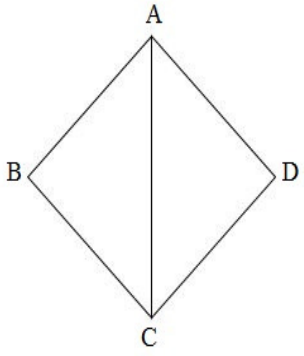


Q 7. A] ABC is a triangle such that $\angle A = 50^{\circ}$ and $\angle C = 60^{\circ}$. Name the longest side of the triangle. –(1)

B] In the adjoining figure $\angle B = 40^{\circ}$ and AD || EF
Find: (i) $\angle BCD$
(ii) $\angle BAC$ –(2)



C] In the adjoining figure, AB $\perp$ BC at B and AD $\perp$ CD at D, BA = CA



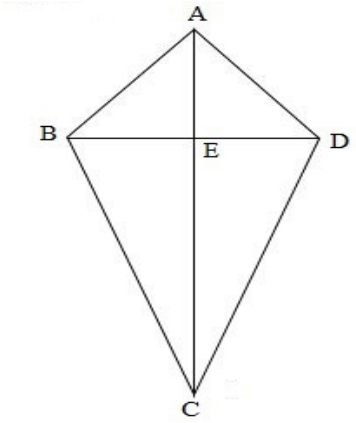
With reference to the figure answer the following questions. –(3)

(i) Why is $\angle ABC = \angle ADC$?

(ii) Name the side common to Δ ABC and Δ ADC.

(iii) State the rule by which the above two triangles are congruent.

D] In the adjoining figure ABCD is a quadrilateral in which AB = AD and BC = DC.
Prove that: (i) AC bisects $\angle A$
(ii) BE = ED –(4)



Q 8. A] Select and write the most appropriate alternative from those given in the brackets. –(1)

1. The persistent rise in prices of general goods and services is _____

(Inflation, loan, budget, economy)

B] Attempt the following:

1. Name the following:

(a) The fee paid to the insurer to be covered under the specific terms. --(½)

(b) A card which is issued by UIDAI to all residents of India. --(½)

2. Why is gold loan considered to be easiest loan to procure? --(1)

C] Attempt the following:

1. What is overdraft? --(1)

2. Ram deposits Rs. 1,00,000 with State Bank of India. The SBI keeps 20% of it as cash for meeting the withdrawal requirements of its customers and lends the remaining to Mohan. When Mohan deposits this amount in Bank of India, BOI also keeps 20 % of it and advance the remaining to Sohan.

(i) How much amount is left with SBI ? --(1)

(ii) How much amount is left with BOI ? –(1)

D] 1. Mr. Kumar is working as a supervisor at a mine in Goa. His monthly income is Rs 20,000 per month. His planned and actual expenses are as follows.

Cause	Planned Expenses(Rs)	Actual Expenses(Rs)
House Rent	5000	5000
Conveyance	1800	1800
Food	6000	5600
Mobile	1000	1300
Clothes	3000	3100
Entertainment	1200	1100
Savings	2000	-------
Total	**20000**	**20000**

Answer the following questions. --- (3)

(i) How much Mr. Kumar actually saved after comparing his planned and actual expenses?

(ii) In what areas did he overspend?

(iii) In what areas did he spend less than he planned?

2. In a particular village having 500 households, on an average it is estimated that 8 people die every year. If economic value of each person is Rs 2,00,000 , What should be the contributions made by 500 people to compensate for this loss under risk insurance? --(1)

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