

DHAKA COACHING CENTRE

Karimabad Campus: 36826389, 36826381 Gulshan Campus: 34987386, 34813611, 34811691

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GRAND TEST 2017

Paper: Physics

Class: X

Time: 3 Hours

Max. Marks: 85

Time: 30 Minutes

SECTION 'A' (Multiple Choice Questions)

Marks: 17

Q1. Choose the correct answer for each from the given options:

- i. Ibn-ul-Haithem was born in 965 A.D in :
a) Basra b) Pakistan c) Italy d) Asfahan
- ii. The refractive index of Air is :
a) 1.023 b) 1.30 c) 1.000 d) 1.52
- iii. The audible frequency range is:
a) 20 HZ to 20 KHZ b) 20HZ to 25 KHZ c) 20 HZ to 30 HZ d) 20HZ to 2000 KHZ
- iv. Short sightedness is removed by using _____
a) Convex lens b) concave lens c) plane mirror d) none of them
- v. One hours power = _____ watt
a) 900 watt b) 746 watt c) 760 watt d) 950 watt
- vi. The mass of the earth is:
a) 6×10^{24} slugs b) 6×10^{24} grams c) 6×10^{24} N d) 6×10^{24} Kg
- vii. The S.I. unit of work is
a) Watt b) Newton c) N-m d) Dyne
- viii. For an ideal machine
a) The output is always greater than the input b) the output is always equal to the input
c) the output is always less than the input d) the output is seldom equal to the input
- ix. The current obtained from a battery is always
a) A.C b) D.C c) P.D d) P.N
- x. The value of radius of earth is:
a) 6.4×10^6 m b) 6.4×10^6 m c) 6.67×10^{-11} m d) 6×10^{24} m
- xi. Which of the following correct for power
a) $P = q/p$ b) $P = F.V$ c) $P = F. 1/v$ d) None of them
- xii. A car accelerates uniformly from 5m/s to 13m/s in 4.0sec. What is acceleration of the car of the car in m/s^2 .
a) $0.5m/s^2$ b) $1.25m/s^2$ c) $0.80m/s^2$ d) $2.00m/s^2$
- xiii. The instrument used for measuring the unknown pressure with respect to atmospheric pressure is called _____.
a) Barometer b) Manometer c) Pascal d) Oil transmits pressure
- xiv. If $I = 1.5$ amps, $R = 10$ ohms, then V is
a) 15 volts b) 1.5 volts c) 150 volts d) 10 volts
- xv. Shunt converts a galvanometer into:
a) A voltmeter b) an ammeter c) a watt meter d) a calorie meter
- xvi. One micro second is equal to _____ second.
a) 10^8 b) 10^6 c) 10^{-4} d) 10^{-6}
- xvii. By increasing the length of a conductor its resistance is _____.
a) increased b) decreased c) remains the same d) none

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Paper: Physics

GRAND TEST 2017

Class: X

Time: 2 ½ Hours

Max Marks: 68

SECTION 'B' (Short-Answers Questions)

(42 Marks)

Note: Answer any 14 questions from this section. No answer should exceed 3 to 5 sentences.

- Q2. Define Physics and its three branches.
- Q3. Two forces of 3N and 4N are acting on a body. If the angle between them is 90° , find the magnitude of the resultant vector.
- Q4. Explain the head to tail rule of vector addition.
- Q5. A car moving with a uniform acceleration from rest attains a speed of 36km/hr in 5 minutes; find the acceleration of the car.
- Q6. Write down three methods of reducing friction.
- Q7. Define Linear Momentum. Write down its formula and S.I unit.
- Q8. Define Equilibrium. Write down the conditions of equilibrium and the related formulae.
- Q9. A stone of 200gm mass tied to one end of a string of length 50cm is whirled from the other end in a circle with the constant speed of 2m/s; find the tension in the string.
- Q10. The length of the handle of a screw jack is 42cm and its pitch 0.001m; find its Mechanical Advantage.
- Q11. Write down the two characteristics of three resistances connected in parallel and draw diagram.
- Q12. 117.6J heat is required to raise to temperature of 10gm of silver by 50°C ; find the specific heat of silver.
- Q13. What is transistor? Draw the symbolic diagram of two types of transistors.
- Q14. Define the following:
i) Irregular Reflection ii) Radius of Curvature iii) Magnification of a Concave Mirror
- Q15. A convex lens forms a virtual image of an object at 5cm away from the optical centre and placed distance of 10cm. Determine the focal length of the convex-lens.
- Q16. Define: i) Photon ii) Dispersion of Light iii) Total Internal Reflection
- Q17. What is the Wave theory of Light? Write down two phenomena which support this theory.
- Q18. Half life of radon is 382 days. How much of a 100 gm sample of radon would be left after 764 days?
- Q19. A 100 watt bulb operates in a 200V circuit: find the current through the bulb.
- Q20. What is an Electromagnet? Illustrate it with a labeled diagram and write down its two uses.
- Q21. What is capacitor ? Write the factors on which its capacity depends.
- Q22. Write down 3 precautions to minimize radiation hazards.

SECTION 'C' (Detailed-Answers Questions)

(26 Marks)

Note: Attempt any 2 questions from this section.

- Q23a) Derive the equation $S = v_0 t + \frac{1}{2} a t^2$
- b) Write down two characteristics properties of Simple Harmonic Motion.
- c) The frequency of vibration of a wire is 400 hertz; find its time period.
- Q24a) Define Evaporation. Write down any four factors on which the rate of evaporation depends.
- b) Define Kinetic Energy and Potential Energy and write down two points of difference between them.
- c) Draw ray diagram only to show the nature, position and size of the images formed by a concave mirror when the object is placed:
i) At the centre of curvature of the mirror
ii) Between the centre of curvature and the principal focus
- Q25a) Derive the equation $M_e = \frac{g R_e^2}{G}$ to determine the mass of earth, by applying the law of gravitation.
- b) Define the following:
i) Refractive Index ii) Critical Angle iii) Power of a Lens iv) Magnifying Glass
- c) What is natural radioactivity? Write down four properties of Alpha rays.

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GRAND TEST 2017

Class: X

Paper: English

Max. Marks: 75

Duration: 3 Hours

Max. Marks: 15

SECTION "A" MULTIPLE CHOICE QUESTIONS (MCQs)

Duration: 30 Minutes

Q.1: Choose the correct answer for each from the given options:

i. He was ignoring me. (choose the right passive voice)

- a) I was ignored by him
- b) I was being ignored by him
- c) I ignored by him
- d) I was being ignoring by him

ii. A Kite was flown by her. (choose the right active voice)

- a) She flies a kite.
- b) She was fly a kite
- c) She flown a kite
- d) She flew a kite

iii. He is _____ MBBS doctor. (choose the right article)

- (a) a
- (b) an
- (c) the
- (d) none of them

iv. I distributed sweets _____ all the students. (choose the right preposition)

- (a) between
- (b) among
- (c) of
- (d) in

v. You didn't blow this balloon. (choose the right affirmative)

- a) You blew this balloon
- b) You blow this balloon
- c) You blows this balloon
- d) you did blow this balloon

vi. Kiran said to Maheen may i borrow your book . (choose the right punctuated sentences)

- a) Kiran said to Maheen, "May i borrow your book."
- b) Kiran said to Maheen, "May I borrow your book!"
- c) Kiran said to Maheen, "May I borrow your book?"
- d) Kiran said to Maheen, "May I borrow your book"?

vii. Idiom "To break the ice" mean (choose the right meaning of the given idiom)

- a) To break the ice with an axe
- b) You break the ice into pieces
- c) To break the ice to put in cold drink
- d) To overcome shyness and put people at ease with one another.

viii. I am learning. (choose the right present perfect continuous)

- a) I have been learning since last week
- b) I have been learning for 2012
- c) I had been learning since 3'O Clock
- d) I have been learning for last night

ix. The Poem "Little Things" was written by _____ (choose the right word to fill in the blanks.)

- a) L.I. Newman
- b) Julia Carney
- c) Anonymous
- d) Eliza Cook

x. King Faisal was made Governor of _____ when he was only twenty years old.

(choose the right word to fill in the blanks)

- a) Madina
- b) Israel
- c) Iraq
- d) Hijaz

xi. Thar is _____ place than Multan. (choose the right degree of Adjective)

- (a) Driest
- (b) driyest
- (c) drier
- (d) dryer

xii. They win the match. (Choose the right interrogative)

- a) Will they win the match?
- b) Will do they win the match?
- c) Do they win the match?
- d) Will they be win the match?

xiii. I buy a gift. (choose the right negative)

- a) I doesn't buy a gift
- b) I didn't buy a gift.
- c) I don't buy a gift
- d) I not buy a gift.

xiv. He said to me, "Have you written this answer?" (choose the right Indirect speech)

- a) He told me that I had written that answer
- b) He asked me that I had written that answer
- c) He asked me if I had written that answer
- d) He asked me if I had written this answer

xv. She told him that she would begin that from the next day. (choose the right direct speech)

- a) She said to him, "I will begin this from tomorrow."
- b) She said to him, "She will begin this from tomorrow".
- c) She said to him, "He will begin this from tomorrow"
- d) She said to him, "She would begin this from tomorrow".

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GRAND TEST 2017

Class: X

Paper: English

Max. Marks:60

Time: 2½ Hours

SECTION – B (Short Answered Questions)

Q.2a) Answer any eight questions from the following: (24)

- i. What the Holy Prophet (SAWW) love and were the companions of the Holy Prophet (SAWW) like him?
- ii. What is tent pegging and what was the special announcement?
- iii. What was the dispute between the richman and the beggar?
- iv. What does “Akhund” mean? What are the qualities of a teacher?
- v. What are Nigerian food and cash crops and who tend them?
- vi. What was the suggestion of Azam about the division of the property?
- vii. What did the camel caravan carry and bring?
- viii. Why is the Punjab called the seat of learning and what do you know about the civilization of the valley of Mehran?
- ix. What are the dangers of marine fishing?
- x. Why was King Faisal against the state of Israel?

Q.2b) Answer any four questions from the following? (12)

- i. What does the poem “ Speak Gently” tell us?
- ii. What lesson did the King learn from the spider?
- iii. How should the character be of a man, according to the poem “A Nation’s Strength”?
- iv. Why does the poetess praise the mother’s hands? And says the hands is like a rainbow.
- v. How can we make our world an Eden?
- vi. What does the poet see from a railway carriage and Pleasures does he get from his journey?

SECTION – C (Descriptive answered questions)

Q.3:- Write an essay of 120 to 150 words on any one of the following topics. (8)

i. Problems of Karachi city	ii. Terrorism	iii. An exciting cricket match
iv. Advantages & Disadvantages of any science invention		

Q.4:- Write an application to the Headmaster/Headmistress to grant you fee concession

OR

Write a letter to the editor of a newspaper describe your concern about load shedding.

Q.5:- Translate any five of the following sentences into English.

(5)

- ۱۔ کیا آپ صبح سے ورزش نہیں کر رہے ہیں۔
 ۲۔ دوست وہ جو وقت پر کام آئے
 ۳۔ جب میں گھر پہنچا میرے والدین رات کا کھانا کھا چکے تھے
 ۴۔ کیا آپ وقت پر اسکول آ سکتے ہو
 ۵۔ آپ کو ہمیشہ سچ بولنا چاہیے
 ۶۔ وہ دو گھنٹے سے گانا گارہی تھی
 ۷۔ اگر آپ وقت پر آؤ تو میں تم سے ملاقات کرونگا۔

OR

Summarize the following paragraph.

Among civilized people it was once thought that ginger root has some magical power that could improve the memory. Eggs were thought to make the voice pretty. Tomatoes also were believed to have magical powers. They were called love apples and were supposed to make people who ate them fall in love. Even today there are a great many mistaken ideas about food. One such idea is that fish is the best brain food. Later another false idea about tomatoes grew up the idea that they were poisonous.

Q.6:- Write a short note on any one of the following :-

(5)

- i) King Faisal ii) Dignity of work iii) Khyber pass

OR

Read the following passage and answer the questions given at the end.

Eliza Cook was born in London. She was the youngest of eleven children. She was entirely self educated and wrote verses from the age of fourteen. Her first volume being published at seventeen. Her work is simple and highly moral. She advised us to keep trying and never to be discouraged.

- How did she get education?
- How was Eliza's work?
- What did she advise us?
- How many siblings did she have?
- Write noun form of : young , publish

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GRAND TEST 2017

پچہ: اسلامیات
کل نمبر: ۷۵

جما: ۲:۰۰
وقت: ۳ گھنٹہ

کل نمبر: ۱۵

حصہ الف (لازمی) کثیر الانتخابی سوالات

وقت: ۳۰ منٹ

نوٹ: دیئے ہوئے ممکنہ جملات میں سے ہر ایک کیلئے درجہ و جواب منتخب کریں۔

(۱۵)

(2, 3, 4, 5)

(i) سورة الاحقاف میں جو آیتیں مذکور ہیں۔

(فرض ، وا. # ، مسنون ، مستحب)

(ii) جمعہ کے دن غسل کرنا۔

(۹۰٪ ، تنہا ، درجہ ، شائیں)

(iii) دل کے معنی ہیں۔

(جانور، گھوڑے، کفار، منافق)

(iv) شر الدواہ سے مراد ہے۔

(رشوت دینے والا، رشوت لینے والا، رشوت لینے والا، رشوت لینے والا)

(v) الرشوتی کے معنی ہیں۔

(اچھا ، شریف ، نیک ، بہتر)

(vi) جو لوگوں کو نفع دیتا ہے وہ ہے

(علم کی وجہ سے، K ن ہونے کی وجہ سے، نبی ہونے کی وجہ سے، خاکی ہونے کی وجہ سے)

(vii) حضرت آدم کو فرشتوں کی فضیلت حاصل ہے۔

(جہاد، لیسف، جہاد، لیسف، جہاد، لیسف، جہاد، لیسف)

(viii) جہاد اکبر سے مراد ہے۔

(بہن بھائی، دادا دادی، شوہر بیوی، *** نی)

(ix) ان کے دواہم ستون ہیں۔

(اللہ اکبر، الاستغفار، سبحان اللہ، الحمد للہ)

(x) حضور ﷺ کی حدیث کے مطابق بہترین دعا ہے۔

(حضرت ابوبکرؓ، حضرت عمرؓ، حضرت علیؓ، حضرت عثمانؓ)

(xi) قرآن مجید میں کس صحابی کا نام ہے۔

(بند کٹر، مہر لگا، ختم کٹر، جاری رکھنا)

(xii) خاتم کے معنی ہیں۔

(23 ویں، 25 ویں، 27 ویں، 28 ویں)

(xiii) سورة الممتحنة میں کس آیت کی تفسیر ہے۔

(محفوظ ہو، قلع بند ہو، احسان کٹر، شامل ہو)

(xiv) احسان کے معنی ہیں۔

(غزوہ احد، غزوہ خندق، غزوہ تبوک، غزوہ بدر)

(xv) غزوہ بدر کا دوسرا نام ہے۔

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GRAND TEST 2017

چہ: اسلامیات
کل نمبر: ۶۰

جما: ۲:۰۰
وقت: ڈھالی گھنٹہ

حصہ ”ب“ (مختصر جواب کے سوالات)

(۳۶)

نوٹ: صرف 12 سوالات کے جواب درکار ہیں۔ تمام سوالات کے ۱۰۰٪ مساوی ہیں۔

- (i) شرالدوآب سے کیا مراد ہے؟
- (ii) شکر کے تین طرز تحریر کریں؟
- (iii) غزوہ بدر میں مسلمانوں کی 3/4 ت کیلئے زل ہونے والے فرشتوں کو دیکھ کر شیطان کا کیا رد عمل تھا؟
- (iv) نبی اکرم ﷺ پر درود و سلام بھیجنے کی کیا اہمیت ہے؟
- (v) حضور اکرم ﷺ کے گھمپ دعوت آنے والوں کو کن آداب کی تعلیم دی گئی ہے؟
- (vi) منہ بولے بیٹوں کے رے میں کیا احکام ہیں؟
- (vii) حضرت ابو ایوبؓ کے کس اسوہ حسنہ کی پیروی کا حکم دیا ہے؟
- (viii) سورۃ الباقیہ میں مسلمان عورتوں کو پ دے کے سلسلے میں کیا ہدایت دی گئی ہے؟
- (ix) ﴿لَا يَأْتِيَنَّكَ السَّوْغُ﴾، ﴿لَا يَأْتِيَنَّكَ السَّوْغُ﴾، ﴿لَا يَأْتِيَنَّكَ السَّوْغُ﴾ کا کیا مفہوم ہے؟
- (x) نبی کریم ﷺ کو مومن عورتوں سے کچھ توں بیعت کیا گیا ہے؟
- (xi) حدیث کی روشنی میں تکمیل ایمان کے کتنے اور کون کون سے اصول بیان کئے گئے ہیں؟
- (xii) پہلی وحی کب جمہ تحریر کریں؟
- (xiii) وضو کے فرائض تحریر کیجئے؟
- (xiv) وحی سے کیا مراد ہے؟
- (xv) حدیث کی روشنی میں تکمیل ایمان کے چار اصول بیان کریں؟

(۳۳)

حصہ ”ج“ (پیا 6 جواب کے سوالات)

سوال نمبر ۲: درج ذیل احادیث میں سے کسی ایک کا ترجمہ اور تشریح تحریر کیجئے۔

﴿يَا أَيُّهَا الَّذِينَ آمَنُوا لَا تَتَّبِعُوا فِي مَالِكُم مِّن مَّاءٍ مَّاءٍ مَّاءٍ﴾ (ii)

enÉ^ÄÖ] àÚ ^e^e èò äxÖ] xjÉ éÚ oxÄ ox ‘ áý(i)

^p+nfÖ +ÎÇm ÜÖæ ^p +nÇ ‘ Üu+ÜÜ àÚ ^ßÜ < nÖ(iii)

سوال نمبر ۳: درج ذیل میں سے کسی دو آیات مبارکہ کا ترجمہ تحریر کریں۔

äÊçq oÊ ànf^î àÚ Øq+Ü äxÖ] ØÄq^Ü(ii)

...^e•ÿ] Üä ÇÇi j Ê^Eu+]æ+ÈÖ àm,,Ö] ÜjñiÖ] f]]ÇÖÜ] àm,,Ö] ^ä] ^m(i)

ð^ñæ] ÜÖæ, Â æ pæ, Â]æ,, í ji ÿ]ÇÖÜ! àm,,Ö] ^ä] ^m(iii)

نوٹ: مندرجہ ذیل سوالات میں سے کسی ایک کا تفصیلی جواب تحریر کریں۔

سوال نمبر ۴ (الف) عائلی نہ کی سے کیا مراد ہے نیز اولاد کے حقوق و فرائض تحریر کریں؟

(ب) حفاظت قرآن کے رے میں آپ کیا جا... ہیں تفصیلاً تحریر کریں؟

سوال نمبر ۵: (الف) عقیدہ ختم ت سے کیا مراد ہے؟ قرآن وحدیث کی روشنی میں بیان کریں؟

(ب) جہاد سے کیا مراد ہے؟ جہاد کی اقسام تفصیلاً بیان کریں؟

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GRAND TEST 2017

Paper: Mathematics

Class: X

Time: 30 Minutes

Time: 3 Hours

Max. Marks: 100

Marks: 20

SECTION 'A' (Multiple Choice Questions)

Q1. Choose the correct answer from the options given below for each question:

- i. $\{0,1,2,3, \dots\}$ is the set of _____.
a. Prime numbers b. Integers c. Whole Numbers d. Even numbers
- ii. $(4^3)^2 \div (4^2)^3$ is equal to _____.
a. 0 b. 1 c. 4 d. 16
- iii. If $\log_2 x = 3$, then x will be equal to _____.
a. 6 b. 8 c. 10 d. 16
- iv. The degree of the polynomial $x^2 + xy^2 + y$ is _____.
a. 2 b. 4 c. 3 d. 1
- v. Simplified form of $\frac{21x^2-7xy}{14x^2y-21xy^2}$ is _____.
a. $\frac{x-3y}{(3x-2y)y}$ b. $\frac{3x-y}{y(2x-3y)}$ c. $\frac{3x+y}{y(2x-3y)}$ d. $\frac{(3x-y)y}{2x-3y}$
- vi. The transpose matrix of $\begin{bmatrix} 2 & 3 \\ 1 & 6 \end{bmatrix}$ is _____.
a. $\begin{bmatrix} 2 & 1 \\ 3 & 6 \end{bmatrix}$ b. $\begin{bmatrix} 6 & -3 \\ -1 & 2 \end{bmatrix}$ c. $\begin{bmatrix} 2 & 6 \\ 1 & 3 \end{bmatrix}$ d. $\begin{bmatrix} 3 & 2 \\ 6 & 1 \end{bmatrix}$
- vii. Two lines are said to be perpendicular on each other if they form a/an _____.
a. Acute angle b. Obtuse angle c. Reflex angle d. Right angle
- viii. A quadrilateral having opposite side parallel is called a _____.
a. Trapezium b. Parallelogram c. Rhombus d. Triangle
- ix. In a right angled triangle the side opposite to the right angle is called _____.
a. Diagonal b. Hypotenuse c. Median d. Altitude
- x. Solution set of $\sqrt{y-2} = 4$ is _____.
a. 18 b. ± 4 c. -18 d. 14
- xi. Eliminate "x" from $x + b = 0, x + c = 0$ the relation is _____.
a. $b = c$ b. $b + c = 0$ c. $bc = 0$ d. $\frac{b}{c} + 1$
- xii. The ration $a^{1/2} : b^{1/2}$ is called sub duplicate ratio of _____.
a. a:b b. $a^3 : b^3$ c. $a^2 : b^2$ d. $a^4 : b^4$

- xiii. In 12, 13, 4, 4, 5, 7, 9 the mode is _____.
 a. 3 b. 5.5 c. 4 d. 9
- xiv. The line which is at a distance equal to the radius of circle from its centre is called.
 a. Radius b. Diameter c. Secant d. Tangent
- xv. Every plane contains at least _____.
 a. 4 non collinear points b. 5 non – collinear points
 b. 2 non – collinear points d. 3 non – collinear points
- xvi. The value of $\cot 60^\circ$ is _____.
 a. $\frac{\sqrt{3}}{2}$ b. $\frac{2}{\sqrt{3}}$ c. $\sqrt{3}$ d. $\frac{1}{\sqrt{3}}$
- xvii. The set $\{0,1\}$ is closed for _____.
 a. Addition b. Multiplication c. Subtraction d. Division
- xviii. The ordered pair (0,2) lies in/on _____.
 a. 1st Quadrant b. 4th quadrant c. x – axis d. y – axis
- xix. $x + 1 = 0$ is a/an _____.
 a. Quadratic equation c. Non – linear equation
 b. Linear equation d. Irrational equation
- xx. If $x + 5 : x + 7 = 5 : 7$, x is equal to _____.
 a. 0 b. 1 c. -1 d. 2

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GRAND TEST 2017

Paper: Maths

Class: X

Time: 2 ½ Hours

Max Marks: 80

SECTION 'B' (Short-Answers Questions)

(50 Marks)

Note: Answer any 10 questions from this section.

Q2. If $U = \{x/x \in \mathbb{N}, x \leq 10\}$, $A = \{2, 4, 6, 8, 10\}$, $B = \{3, 6, 9, 10\}$ Prove that $(A \cup B)' = A' \cap B'$.

Q3. Simplify: $\left(\frac{x^l}{x^m}\right)^{l+m} \times \left(\frac{x^m}{x^n}\right)^{m+n} \times \left(\frac{x^n}{x^l}\right)^{n+l}$

Q4. Find the value of $x^3 - \frac{1}{x^3}$ when $-\frac{1}{x} = -4$.

Q5. With the help of log table find the value of $\frac{(86.2)^2 \times (37.37)}{591}$.

Q6. Resolve into factors. $x^2(y-z) + y^2(z-x) + z^2(x-y)$

Q7. The sum of three consecutive odd numbers is 909. Find numbers.

Q8. For what value of a and b, $x^4 + 4x^3 + 10x^2 + ax + b$ is a perfect square?

Q9. Solve the equations by matrices.

$$2x + 5y = 9$$

$$4x - 2y = 1$$

Q10. Find the solution set with the help of quadratic equation. $3x^2 - 10x + 2 = 0$

Q11. Prove that the sum of the three angles of a triangle is equal to 180° .

Q12. Find the relation independent of 't' from the following equations:

$$x = t\sqrt{5}, \quad y = 7t\sqrt{2}$$

Q13. If a transversal intersect two parallel lines, the alternate angles so formed are congruent. Prove it.

Q14. If $\frac{a}{b+c} = \frac{b}{c+a} = \frac{c}{a+b}$ and $a+b+c \neq 0$. Prove that $a=b=c$.

Q15. If two angles of a triangle are congruent, the sides opposite to them are also congruent. Prove it.

Q16. Prove that $\frac{1-\sin\theta}{\cos\theta} = \frac{\cos\theta}{1+\sin\theta}$

SECTION 'C' (Detailed-Answers Questions)

(30 Marks)

Note: Attempt any 3 questions from this section including Question No. 19 which is compulsory.

Q17. Factorize the following:

i) $a^3 - a^2 + 2$

ii) $x^2 + 15x - 100$

iii) $x^3 - 64y^3$

iv) $a^4 + a^2 + 1$

Q18. Find the solution set of the following equations graphically. (Find four ordered pairs of each equation).

$$4x - y = 5, \quad x + 5y = 7$$

Q19. In any correspondence of two triangles, if three sides of one triangle are congruent to the corresponding three side of the other, the two triangles are congruent. Prove it.

Q20a. Find the variance from the following information:

23, 15, 48, 41, 5, 8, 9, 11

b. Factorize the following with the help of remainder theorem:

$$x^3 - 5x^2 - 2x + 24$$

Q21. Draw a circle of radius 2.5cm. Take a point B at a distance of 6.5cm from the centre of the circle and draw two tangents to the circle passing through B. Find the length of segments of tangents by measuring them. Verify your measurement with the help of Pythagoras theorem.