Chapter 3

The Concept of Geometric Patterns in Indian Islamic Painting
CHAPTER – III

THE CONCEPT OF GEOMETRIC PATTERN IN INDIAN ISLAMIC PAINTINGS

In psychological treatment mental faculties and traits of an artist’s personality is judged through paintings because he paints what he thinks or feels. He expresses his views clearly with the help of various colours, brush strokes and symbols. This is an established fact that paintings of each era make us understand easily the views of the people and their life style.

After their arrival in India Muslims were influenced by the local arts of the country so much that even in their new pattern of geometric patterns we find reflections of old Indian traditions and culture. Some of their paintings specially architectural scenes are beautiful specimens of old craftsmanship and art.

A. Geometry in Decoration

'The use of geometric patterns for decoration purposes started after advent of Islam in Arabia. Islam strictly prohibits figural representation because it leads to idolatry i.e. worship of images of human or animal figures'. Keeping in view this strong injunction the Islamic artists introduced geometrical patterns as symbols to show their artistic creativity and produced beautiful designs in paintings and architecture. In Islamic arts these patterns revolve round all beautiful things created by God in the Universe. These patterns either single or in combined form display all types of surfaces showing intricate and complex arrangements. With the passage of time demand for these patterns grew manifold and they were extensively used in the fields of painting
and architecture. Variety and ingenuity made these patterns meaningful and lively. They no longer remained formal symbols and each pattern conveyed its special significance and meaning.

(i) Symbol

Symbol means an element of communication to depict any object, person, group, process or idea. It represents some meaning, impact or significance. There are several kinds or types of symbols. For example graphic symbols like red cross and crescent are used by worldwide humanitarian agencies and traditional symbols like lion represent courage. It may be in the form of letters also such as ‘c’ stands for chemical element or carbon. Sometimes instead of referring to any element or reason a symbol denotes an action, decision or rule such as use of mathematical symbol ‘∞’ for infinity. Symbol is also a communication of ideas to display glimpses of common culture to be shared and enjoyed by masses.

Each society uses a symbol system of its own which reflects its specific cultural traits. This symbolism supplies abundant information about culture to viewers within the frame work of social traditions and contains many delicate hints and hidden allusions.

(ii) Symbolism in Islam:

Though the scope and range of symbols is very wide yet certain symbols commonly used by Muslim artists are explained and discussed here. “New moon (crescent) combined with a star” is regarded as a symbol of displaying Islamic Society. During Muslim period this was commonly used by Turk Caliphs and Muslim rulers. Similarly ‘green colour’ bears a long
association with Islam and is regarded as a Islamic colour or symbol. Prophet Muhammad (PBH) had a ring ‘Khatam-e-Mohmmadi’ engraved with a eight point star. He used it as a seal and a symbol. After him star was used as an Islamic symbol. More details will be discussed later on.

‘A renounced muslim mystic (sufi)’ scholar Ibn-al-Arabi’ had drawn certain diagrams concerning spirituality and these patterns were subsequently used in different orders of Sufism. Eight point star is also used as a symbol in Sufism. According to Ernest scroll it is the seal or design to reach the inner most secrets of man and implies wholeness, power and perfection. It is stated that in a ring used by Prophet Hazrat Suleman: “Khatam-e-Sulemani” a six pointed star was engraved. He used it as a seal in his daily transactions.

By using these Islamic symbols as designs various artists of repute have drawn beautiful patterns and communicated their views and expressions.

Symbols are useful to explain expressions and ideas and make people understand their meaning. But only verbal explanation of a symbol is not enough. It has to be depicted in a form which remains permanent and impressive. It is therefore necessary that an artist should develop a pattern to express his views.

In Islamic tradition Geometry is being used as a communicative symbol from the very beginning. Finally it became a part and parcel of Islamic culture and all over muslim countries it was used as a message to display art. With the development of painting Geometry found an important place in it and after crossing borders of cultural exchange reached India.
(iii) Connection between Art and Geometry

In this universe things move exactly in accordance with the current of human thoughts. An analysis of human thinking makes us to believe that man does not continue to think in similar fashion for long and changes frequently occur during the process of thinking. When he starts thinking he feels all of a sudden that some figures have been added to zero or some development has pricked his mind. This point is visualized as a symbol and when he thinks further he gets another point and in this way thinking continues to pick speed and all these points take the form of symbols from time to time. Thus human thoughts move in different directions in different forms just like lines formed by points take different shapes shown in Geometry.

Muslim intellectuals were deeply interested with research and quest for learning. Very soon they collected treasures of knowledge from Greek Philosophy, Mathematics and other sciences and translated them into Arabic for the benefit of their successors. They went through the works of eminent Greek Philosophers and scholars like Pythagoras and Euclid. They expounded mathematical analysis and connected it with spirituality. Their studies and analysis built reliable methodology to visualize and prove Unity of God or 'Al-Tauheed'. The religious scholars of Islam used Geometry as a Unifying intermediary between materialism and spiritualism. In this period study of Geometry and Astronomy (Science of stars) reached an advanced stage. Traditionally Arabs used constellations for navigation in deserts and seas and to find Qibla (Direction to Mecca for their prayers). Islamic scientists became expert astronomers and used geometrical skills to measure heavenly bodies. Geometric patterns and construction of these people showed their skillful
powers of creativity and imagination. We find perfect systematic proportions in their patterns and combination of different types of forms and designs. This geometric method or approach provided ample choice and variety of designs and established a new system of composition and execution of aesthetic construction and expression.\textsuperscript{10} The most important salient feature of the system was that it was based only on human expression without any mechanical assistance or interference.\textsuperscript{11} Detailed knowledge was collected on this subject and remarkable skill and expertise was achieved. This glorious art displayed an abstract or intellectual beauty based on depth of knowledge compiled with delicate imagination and faithful expression of the motif.

Islamic artists have served as curators and promoters of Geometry and used it as a vestige or symbol to preserve sanctity and unity of God in painting. Due to their efforts Geometry displayed attributes of God and their multiple influences on universal order of things. In others cultures we find similar use of Geometry e.g. among Hindus in Yantras and mandalas among Buddhists and Tibetans in pieces of arts and even in native sand paintings of north Americans. The earliest known users of Geometry were Egyptians who embedded secrets of nature in ground plans of their temples, frescoes and pyramids. Their single handed exercises followed most of the fundamental Universal laws\textsuperscript{12}. Though these enlightened people used Geometry in other types of terrestrial applications also yet main emphasis of Geometry was focussed on metaphysical worth or measure visible in nature.

Geometry is called sacred because it reflects pure form of Godhood and its dynamic equilibrium points out towards a particular aim or spirituality. On the other hand man thinks as per dictates of his inner self and achievement
of Spirituality may be an outcome of this process. ‘While geometric designs may have reached their zenith in Islamic world, their basic shapes and intricate designs existed much before during days of Byzantine and Sasanian empires. Muslim artists borrowed key elements from the classical traditions and elaborated them to invent a new decorative form that stressed the importance of unity of God, logic and order’.13

B. Structure of Pattern

In Islamic arts Geometry is commonly used and its transformation in painting is really an imaginative and wonderful artistic addition. The skill of Muslim artists demonstrate their full command over Geometrical pattern specially their balancing effects and a nice combination of colour scheme and tone values. They fill background of their paintings with geometric designs of different patterns full of visual and symmetric beauty. They show that artists have taken special care in construction method and designed philosophy of every pattern separately. Use of Geometry by Islamic artists showed their strong intuition towards a universe based on logic and order. Their geometric patterns possess five basic characteristics –

1. They are not designed to fit within any particular frame or Radiation form. There are more repeating elements in outward from center but they are limited by edges of decorated space. They show remarkable degree of flexibility and freedom. Complex arrangements and combination of several elements are infinitely expandable. The frame surroundings and the pattern appears to be arbitrary and the basic
arrangement sometimes provides clues to predict the project and its
designs.  

2. They radiate symmetrically from a certain point – The Geometric points
constructed with a compass suggest different meaning and implications.
Any polygon in a design can be chosen as a central point from which the
pattern radiates symmetrically. Some patterns can be seen as radiating
from a star surrounded by three stars. Either of these combinations
provides a Unit or measure from which the rest of the pattern can be
predicted.  

3. They are constructed from patterns of circle – The complex geometrical
patterns of Islamic art are all elaborations of simplex construction of
circles and every pattern is based on circles.

4. They are made up from a small number of repeated geometric
elements – The characteristic of repetition is fundamental to Islamic
geometric art. The making of a whole complex by repetition of few
elements fulfills two desires of the artist viz (i) to visualize art through
the pattern and secondly to prove and (ii) visualize the Islamic concept
of Islamic Unity (Tauhid).

5. ‘They are mostly two dimensional – Persian painting used three
dimensional space in which human figures could interact with others but
this practice is not followed in Islamic art generally. Even in some three
dimensional paintings made by muslim artists the characteristics of two
dimensional paintings dominate. The placement of pattern against
pattern alone tends to flatten the pictures. Figures seen on sides of the
frame like perspective diagonal lines do not appear to relate concretely to any vanishing point.

So all patterns in paintings are based on these characteristics. Geometrical treasure full of different patterns or designs may be classified in several groups according to different forms used as their base or key or main motif of design. Different patterns are based on different pointed or radiated form in the circle.

But in paintings only few patterns are used. Most common patterns are hexagonal and star shaped divided in equal parts of a circle. The star pattern as principal motif may contain a maximum up to 24 pointed stars.

In some basic patterns like four, five, six, seven and eight pointed, figures geometrical designs are commonly used for decoration in Muslim paintings.

(i) Four Pointed Star

Four Point (Plate 1) Geometry is one of the easiest geometries to set out. It is used as a counter point with circular geometries. It is constructed by raising a perpendicular from the center point of a horizontal line to the point where it cuts a circle described from that point and joining the four points of intersection. Further sub-division upto eight points can be geometrically constructed by sub-dividing the side of squares. In a painting named 'Saleem with scholars and companions in a Mughal garden in 1625 (Plate 2) a four pointed star below eight pointed star is shown in Jali behind the human figures. The whole design of the painting is very beautiful. This geometric design leaves its novel impressions delicately.
(ii) Five Pointed Star:

Draw a circle whose centre is ‘0’. Around it a figure of a star is to be drawn. Select a point A at its radius and then join it with ‘0’ with an angle of 72° and then draw a triangle OAB. Beginning from A and keeping triangle ‘O’ B by the line of AB, divide the circle in five equal parts named A, B, C, D and E. They should be joined by intersection of lines (Plate 3).

In ‘Rustam and Mehar Afroz converse in a garden pavilion’ (Plate 4) it is shown in a painting in Hamzanama. There is another painting from Hanzanama where ‘the fairies call on Hamza to kill the dragon’ (Plate 5). They have architectural form in the background and the design of dome is shown by five pointed stars along with other stars.

(iii) Six Pointed Star

For six pointed star (Plate 6) use a compass and draw a circle and mark the center point. Now using a protractor divide the circle into 30 degree equal sections and mark each section with a dot – Make sure that the top point is in line with center point. Create an upside down equilateral triangle using a ruler and make a dashed line by joining the points. Using the same method draw another equilateral triangle with the help of a ruler and make a dashed line by joining points shown on opposite side. Now six points are shown on opposite side and make six pointed star complete by overlapping of the two. In a painting ‘Night time in a Palace’ a six pointed star has been drawn on the dome and on the side wall below another six pointed star decorates the painting (Plate 7).
(iv) Seven Pointed Star

For making a seven pointed star a circle is to be drawn on a horizontal line. With the centres on their intersection with same radius describe two arcs which cut the circle. Now draw two vertical lines from the points of intersection and construct a third vertical line bisecting the circle from the points of intersection with the circle. Further draw a line which meets the junction of the horizontal line and circle. This line will be at angle 45° to the horizontal line.

With its centre on the intersection of the first arc within the circle, draw an arc from the point where the line to going 45° line cuts one of the two vertical lines. The length of one of the sides of the heptagon will be from the point where this arc cuts the circle to the heptagon and can be located by describing arc with radius of the length of this line (Plate 8).

Use of seven pointed star along with five pointed star and six pointed stars can be seen in the painting ‘Faires call on Hamza to kill the dragon’ (see Plate 5) on the dome and it has been made for decoration purposes.

(v) Eight Pointed Star

Draw a circle using a compass then divide the circle into 45 degree sections. Drawing should end up into 8 equal sections. Using a compass draw a smaller circle with about half radius of the first inside the longer circle. Draw a square joining the points shown. Create another square by joining the other points shown. Mark the points where the dividing lines meet the smaller circle. Also mark the squares overlapping and join the marked points to create an eight pointed star. We should create two eight point stars in side each other. If
we join the inside points of small triangles then we see the two squares have overlapped on the outside.\(^{24}\) (Plate 9) In a painting named 'Humayun Surprising his parents' in background flooring eight pointed star wholly dominates the design.\(^{25}\) (Plate 10).

(vi) Hexagon

This has been used in a painting “The Sultan tests sample of milk”\(^{26}\) (Plate 11) included in Nimatnama manuscript of Mandu Sultanat. In the background the whole design is made of hexagon without any gap and looks like beehive.

'Method of constructing this Geometrical design is by making seven mutually touching circles and simple way of illustrating this is to have seven circles touching each other. This Geometry can be simplified or developed into three point or twelve point Geometry respectively. However as it requires solids to draw the circles, diameter of each circle is drawn in order to fix the points of each corner of the hexagon\(^{27}\) (Plate 12).

The hexagon is one of the more important forms in Islamic Geometry. It is simple to construct and has the capability of having repetition.

(vii) Repeat Unit\(^{28}\)

Here different types of patterns are assembled together and transformed into a new shape (Plate 13). In this pattern the part which is intended for decoration is combined again with different patterns or by overlapping with the similar pattern and a new design is prepared. In two ways the rule of construction of Geometric patterns provides a visual analogy of
unity in patterns and presents a special behaviour of patterns and novel ideas of artists. We find a beautiful specimen of repeated unit in a painting named 'Young Prince and His wife on a Terrace'. Patterns quite different from each other enhance the beauty of the repeated unit.\(^\text{29}\) (Plate 14)

Thus we see that circle is the main part of every pattern because it wholly depends on it. The circle helps in transformation of triangle, square, hexagon, and star patterns.

'Even though the geometric patterns consisted of or generated from simple forms like circle and square yet they were combined, duplicated, interlaced and arranged in intricate combinations to become the distinguishing features of Islamic art.

However these complex patterns seem to embody a refusal to adhere strictly to the rules of geometry. As a matter of fact geometric designs in Islamic paintings suggest a remarkable amount of freedom in repetition and complexity and it offers the possibility of infinite growth.\(^\text{30}\)

Though patterns are constructed in accordance with mathematical rules yet they play a philosophical role without losing expression of sophistication and maintaining their balancing effects in paintings.

**C. Philosophy of Patterns**

Islamic patterns are quite unique forms of Art. They perform their functions and fulfill their aims collectively and always succeed in conveying their desired message.
The colourful Geometric patterns forming the background of Islamic paintings have not been developed haphazardly or out of their own. These patterns have their own languages and they are beautiful specimens of fine imagery and full of wisdom and philosophy. Many patterns look similar but they differ in minute details and possess their individual identity.

'Circle is most important part of construction of all geometrical patterns'. The circle has several meanings or aspects. It begins from a point and develops into a form having depth like a river. It does not have any space for accommodating any other figure. It is complete in itself and does not allow drawing of any other figure or form in it. This shows its solidarity and wholeness. 'Artists acknowledge its unity and consider it a symbol of Al-Tauheed. It reminds and refers to KALMA. “There is no god but only one God' Artist wants to stress on Tauhid by displaying central point of the circle. When he expands this point it is transformed into a circle and in his view it spreads over all the four directions around itself at the same time. This is display of God’s power, glory and justice. According to Muslim scholars all points are one and same in the eyes of God. To Him there is nothing small or big and no difference exists in the whole universe and He treats everything equally. The appearance of a circle remains same in different directions as a complete circle. This sort of equality and uniformity is its main characteristics. If we look at a circle after its completion, we feel a sense of continuous development and do not stipulate any end of it. Similarly God does not have any end. He is single, unique and is complete in Himself in all respects. He does not have any relative or connection and this never ending glory and power will continue forever. 'The Circle’s role also emphasizes the significance of
Makkah. Muslims all over the world have been ordered to turn their faces towards Makkah while performing their prayers. This ensures equality and unity among them. Since Kaaba is the house of God, all devotees offer their prayers towards it from all directions. This also denotes equality of unity. Circle symbolizes unity and equality in all Islamic patterns. It contains many figures in itself and each of them convey different meanings 'Circle offers three fundamental figures in Islamic designs', Triangle, square and Hexagon. Besides another important figure star shape is also based on circle.

(i) Triangle

Islamic artists consider triangle as a symbol of human consciousness and principles of harmony. To understand the concept of this consciousness, translation a dOHA (couplet) of Sant Kabir is worth quoting: (Constant labour in the field makes Root & Plants strong : Frequent friction with ropes leaves permanent impressions on stones).

It means through regular practice and labour one can overcome all difficulties or hurdles and get success. Just see that continuous friction of rope leaves permanent impressions on stone. If one gets repeated lectures or pieces of advice he can understand and learn everything easily. Human nature retains anything after learning it three times. It is necessary to distinguish between good and bad and only then one can take right decision in life. It is said Holy Quran has been divided into three parts for seeking knowledge. The first set of its verses or Ayats is called Ayat-e-Mohkamat (Basic or clear verses), second part is called Mutasha-behat (resembling verses) and the third relates to Ayat Muqattat' (letters or words). “It is He who has sent down to you (Muhammad
SAW) the Book (this Quran). In it are verses that are entirely clear and they are the foundations of the Book [and they relate to verses giving Al-Ahkam (commandments) Al-Fara’id (obligatory duties) and Al-Hudud (legal laws for the punishment of wrong doers); and others are not entirely clear. So as for those in whose hearts there is a deviation (from the truth) they follow that which is not entirely clear thereof, seeking Al-Fitnah (Polytheism and trials), and seeking for its hidden meanings, but none knows its hidden meanings save Allah and those who are firmly grounded in knowledge, say: ‘we believe in it; the whole of it (clear and unclear verses) are from our lord (Tafsir Al-Tabari)’. The first type of Ayats are very simple and meant for guidance. They give us direction in lucid language to know and follow truth and lay instructions how to lead good life based on faith. In second set of Ayats God has explained the good and bad things to us, pointed out his blessings of Rahmat and Maghfirat, showed love to his slaves and his vigilance over their actions and conduct and threatened them with His displeasure and torment to the wrong doers and evil makers. The third type of verses ‘which are readily in form of broken letters like Alif-lam-Mim, Sâd, Nûn, Qāf etc. are miracles of the Quran, and none but Allah (Alone) knows their meanings’. Thus Quran imports consciousness among human being through three types of Ayats. Islamic artists have used figures made of three lines as a symbol of human consciousness. They have also accepted is a symbol of harmony because all three sides of triangle are equal and it looks the same from all directions. Thus interpretation of a figure constructed by three equal lines as a symbol of unity of thought or harmony is an ample proof of the wisdom and greatness of muslim artists. If human consciousness and harmony are combined together it
would lead to a clear cut distinction between good and bad and make humanity on guard against bad or evil things. Thus these artists have very skillfully used triangle as an effective symbol to awaken human beings and enable them to draw clear line between virtue and vice.

(ii) Square

Islamic artists regard square as a physically acceptable social symbol. It is surprising that here instead of circle square has been used to show earth. But it may be due to reason that circle because of its appearance only could be accepted as a symbol to represent earth but on the basis of outward resemblance it could not be accepted as a suitable symbol in artistic patterns. Islamic artists have applied the test of logic in determination of this symbol. They have selected square as a symbol for physical world because it has got four corners like four corners of the world. Further Islamic artists take into consideration four constituent elements of world, viz earth, fire, water and wind. (Plate 15) Thus their choice of this symbol fits in. They apply another logic and state that from religious point of view many points reflect upon the physical world. All of us know that our world exists physically but artists think beyond this simple truth. They believe that four corners can be resembled with the four important arguments in favour of Islam. The first thing that Islam stands for is giving correct divine guidance to the people of earth. It says four celestial books have been revealed to the world, (Zubur, Taurat, Injeel and Quran) and with their help man can lead a good life of virtue. Second thing is that there are four prominent angels (Plate 16) Jibraeel, who acts as a messenger of God. He conveys messages of God (Wahi) to the prophets who
propagate commands of Allah to their people and tell them to follow a life of piety. ‘The other angel is Mikaeel who looks after rainfall, wind, water and agriculture etc. Mikaeel has been entrusted to look after the necessities of life to mankind. The third angel is Israfeel who on the Day of judgement will signal to the end of the world. In religious books that signal has been named as soor-e-Israfeel. On the day of judgement people will be punished for their sins and the physical world would come to an end. This proves that physical world is mortal and will not last forever. The fourth angel happens to be Izraeel who is called angel of death. His task is to draw out life from human bodies. Every one’s days in this physical world are numbered and he has to return his life to the Creator at the expiry of his age and Izraeel is sent to him by God for this purpose. This shows that life in this world is confined to a limited time and man is not immortal and has come here an a temporary visit and has to return. Thus human life is a journey which should be spent in doing acts of piety.

A look at a square gives us a feeling that we are surrounded from all the four sides. This world is like a school from which no human being can absent himself or run away. His body can not travel beyond its four walls. It has been stated in Holy Quran ‘And to Allah belong the east and the west, so wherever you turn (yourselves or your faces) there is the face of Allah (and He is high above, over His throne). Surely! Allah is All sufficient for his creatures ‘needs Allah knowing’. It means that God is seeing us from all directions and He has made this physical world bounded by four directions.

In man’s sub conscience this feeling persists and that is why in his general life he uses all the four directions. For example when a man is put to
grief he utters these words “Oh I have been subjected to troubles from all four sides”. According to Holy Quran when God commanded man to build a house for him. ‘And (remember) when we made the House (the Kabah at Makkah) a place of resort for mankind and a place of safety. And gave you (people) the Maqam (place) of Ibrahim (Abraham) [or the stone on which Ibrahim stood while he was building the Kabah] as a place of prayer (for saying of your prayer, e.g. two Rak’at after the tawaf of the Kabah at Makkah), and we commanded Ibrahim (Abraham) and Ismail (Ishmael) that they should purify My House (the Kabah at Makkah) for those who are circumambulating it, or staying (I’tikaf), there or bowing or prostrating themselves (in prayer).45 In their mind only shape of a square emerged and they built Kaaba in square shape and used equal proportion in all four sides. Similarly from amongst twelve months of the year only four months were notified in which fighting and bloodshed in and around Kaaba was prohibited irrespective of legal formalities. In these holy months Muslims have been advised to perform Tawaf (rounds) of Kaaba at least once. In Quran the description of Nur (light) of Allah has been stated.

‘Allah is the light of the heavens and the earth. This light ahs been stated in the form of a parable. There is a niche and within it is a lamp filled in a glass. It is burning like a glittering star. It is lit from a blessed tree (an olive) neither from the east (i.e. neither it gets sun-rays only in the morning) nor from the west (i.e. nor it gets sun rays only in the afternoon, but it is full of light all the time and whose oil would almost glow forth (of itself), though no fire touched it. Light upon light! Allah guides to His light to whom He wills. And Allah sets forth parables for mankind, and Allah is All knower of everything.46
Thus we see that in our physical world square has been beautifully used on spiritual level. This figure explains the external form of world and tells us that some one is watching us from all the four sides and man has to bear trials and tests within the four walls of this world. His body cannot escape or runaway from this boundary of four walls. At the close of his life time his soul is detached from his body. Atleast one day this whole world will come to an end and all people will have to give account of their deeds to Almighty. Thus His world made of four elements does not provide a permanent place for anyone and is only a transitory place of stay.

(iii) **Hexagon**

‘According to Islamic artists this six pointed pattern is a heavenly symbol. Hexagon is close in shape to circle and is associated with the perfection of the circle\(^4\). Along with its perfection and sound resemblance with circle it makes us feel its sweet serenity. This six cornered hexagon is based on seven circles. There is a circle in the middle and six circles are constructed around its four sides. About number seven associated with it has been mentioned in Holy Quran. ‘It is Allah who has created seven heavens and of the earth like there of (i.e. seven) His command descends between them (heavens and earth) that you may know that Allah surrounds all things (in His knowledge).\(^5\)

This verse clearly tells us that Allah created seven heavens and earth and it is Who really knows almost all things. Similarly in another verse Quran says ‘Indeed your lord is Allah who created the heavens and the earth in six days and then He rose over (Istawa) the Throne (actually in a matter that suits Him
and His majesty). He brings the night as a cover over the day following it rapidly and (the created) the sun, the moon and stars. They are subjected to His commands. Blessed is Allah the lord of both worlds (Aalamin). This verse states that God made earth and heaven in six days. Therefore Islamic artists have used six sides of a Hexagon as a symbol for six days of creation and Seventh side to depict the arrangement of heavens. As per concepts of Islam individuals will be placed in different sections of heaven in accordance with their deeds and heaven has been arranged like wise. The artists have developed the underlying ideas of human deeds in the world and their assessment and show that every individual would get reward or punishment as per his performance.

(iv) Star

Star in the eyes of Islamic artists means spread or advancement of Islam. It is a beautiful pattern in Islamic designs. Its wide spread points on its four sides beautifully strike a wonderful balance. Its shape from all sides is uniform and emit rays proportionality. In paintings 4,8,6,5 and 7. Painted sprays have been used.

(a) Four Pointed Star

Four pointed star is known as 'Breath of compassionate' which is quality of God and it signifies the overall majesty and power of God manifested in the universe. It confirms His existence and makes others feel HIM. 'According to Ibn-e-Arabi 'breath of the compassionate' (Al Nafsa Al Rahmani) means that every object purified by creator from evil can be transferred to this material world. 'Breath' denotes the process of life in this
world and it also explains its reality and purpose. The natural process of creation is the most astounding proof of creator’s existence. It proclaims that there does exist some authority or super power who has created this universe and is governing it. Actually utility or importance of anything is realized in the context of its contrasting or opposing situation e.g. pleasure is felt after suffering pain, similarly importance of life is realized in contrast to death and significance of breathing is understood when we see the after effects of its discontinuation and realize that it is dependent entirely on HIS will. Creation possesses two distinct phases. ‘The first phase relates to self disclosures (‘al Tajall ul dhani) then its light leads to disclosure of the reality and existence of other objects (Al Tajall al Assamil) and explains the outer or external truth. However inward realities entirely remain with God and do not reveal anything except the true reality. Thus Divine light possesses knowledge of characteristics of all internal and external objects. This points out to compassionate vapour (Al Bokhar Al Rahmani). The sole power who knows everything is the most mercifual. When this vapour is transcends in natural forms then it manifests its other characteristics.

Ibn-e-Arabi gives an explanation of these processes related to the universe. He says that feeling of pain and worries attract our attention and show external impressions. The sufis of sixteenth century have argued that initial or first breath is withheld because of painful feelings growing tension and pressure. When this breath comes out the feelings of tension and congestion come to an end.

‘According to Al Qashani breath of compassionate comprises of two processes. One is to inhale the breath and second relates to its expulsion under
some pressure. But he does not attach any importance to these things and declares that they are distresses of the compassionate (Karb al-Rahmani) and accrue because of tension and pressure built up in life system. An important feature of creation is that it takes a form through medium of breath of compassionate (Al-nafas al Rahmani). Then he raises two questions about creation. The Creator knows fully inner and outer situation but keeps something hidden with Him. Why it is so? Again when something is created what is the reason of its creation.

Breathing involves repetitive act – one inhaling the breath and then to expel it out. Sufis call it metaphorically 'renewed creation'. They say continuation of breathing shows divine form of creation and renewal of creation along with the breathing process. Alphabetic symbolism is the basic concept of explaining divine breath. ‘According to Al-qasimi the continuation of breathing shows will of God and therefore all breathes are involved with Him (Al-nafas) and HE is the blower of soul’.54

To visualize concept of breath of compassionate one has to see both its positive and negative side. It signifies that God is creator of Universe and all objects. He knows inner and outer aspects, He is sustainer of life and allows us to breathe. He is most merciful and compassionate.

(b) Five Pointed Star

‘Five pointed stars were used as symbols on the coins of Umayyad caliphs. In Mamluk period use of five star as a defence symbol was quite popular.55 In some other Muslim countries five pointed star along with moon was displayed at religious places. Islamic artists in their geometric patterns
used it an religious grounds specially because of its conformity to five pillars of Islam followed strictly by muslims all over the world. They are as under –

1. ‘Pronouncing the KALMA, chanting an affirmation of the existence of one God i.e. Allah and prophethood of MUHAMMAD (PBH).

2. Praying in precisely defined words and motions five times a day.

3. Giving alms

4. Fasting during the month of Ramzan (The months varies according to lunar calendar).

5. Pilgrimage to MAKKAH atleast once during life time.

Sometimes visual analogy of these basic rules are provided by construction of Geometric patterns. They depict style of religious behaviour through their wonderful expression in an exquisite manner.

(C) Six Pointed Star

Looking at it we find that it has been constructed by overlapping of two triangles and its inner part is in the form of a hexagon. According to tenets of Islam creation was completed in six days. Many theories have been put forward about 6 pointed star. It is stated that ‘jewish people believed that the two opposite facing triangles of the star represent God and SATAN. According to another theory it is called star of David and also seal of Solomen (Arabic pronunciation Suleman). ‘Star of David (in Arabic Daood) (Plate 17) refers to major star in sky and is not Jewish in Origin.

David (Daood) was father of Hazrat Suleman Alaihs Salam Suleman got a ring from his father in which this star was carved. This ring carried
mysterious powers and Suleman had full control over Jinns, all living things in air and water. He could understand the languages of all creatures. It is also said that he possessed hidden and magical powers. Religion tells us that all these powers were bestowed upon him by God who chooses persons and allocates them power and work as per HIS will.

(d) Seven Pointed Star

The number 'seven' finds place in many Islamic buildings. For instance in the 'Hall of Ambassador's in Al Hamra Palace Granada (Spain) this number seven along with number four is seen at many places. This hall in Alhamra Palace was designed for contemplation and quiet devotion. It was a place supposed to bring a man closer to His creator through spiritual concentration and devotion. It is quite significant to note the use of this number to integrate and decorate this important place. 60

There are many significant coincidences of use of number seven in Holy Quran as pointed out by commentators and Muslim scholars. Some instances are given here –

1. The first surah of Quran ‘Alfatiha’ comprises of seven verses.
2. Seven is the first number mentioned in the Quran.
3. The total number of words used in first surah Alfatiha is 49 which is a square of seven. 61

These coincidences show some special significance of this number. Further we find many references to this number in Holy Quran not only
showing its numeric value but also convey some important symbolic or hidden meaning of this number.

Quran declares that these are seven skies among the stars. We can see seven heavenly bodies (stars) with naked eyes. Their names are (1) Saturn, (2) Jupiter, (3) Mars, (4) Sun, (5) Venus, (6) Mercury, (7) Moon.

They are perceived to be stationary or moving round the earth. They may be regarded an unaided set of geometric ceilings supported by invisible columns and vast number of millions of stars and planets.

According to a Hadith quoted from Prophet at the time of ascension (Meraj Sharif) Prophet Mohammad was escorted and guided by angel Gabriel and passed through seven phases or stages. This shows the importance and significance of this number in Islam and its history.

In mathematics seven is an odd number and is not divisible by any other number except seven. Thus it has resemblance with divine quality of creation viz. that nobody except God can create or destroy anything. In this respect this number points out toward power and glory of God.

(e) Eight Pointed star

'There is universal symbolism found in 8 pointed star. This symbol denotes harmony, balance and cosmic order. At the same time it has been used both as a religious and mystic (Sufianaa) symbol. Since early ages this star was meant to show the everlasting unity and order of universe and rules of nature. It is said that in early Astronomy this star was used as its base or root and is constructed by overlapping of two squares. Its four corners are symbol to
represent four sides of the space viz. North, South, East and West and the other square symbolizes Time. The existence of this star points out that in every year two times sun touches highest and lowest point in the sky and makes longest and shortest day. It indicates summer and winter and also points to two times when sun becomes brightest and sends straight rays on equator night and day become equal (Plate 18). If we refer to Islamic history we find that 'on prophets ring a 8 pointed star was carved. He used it as his seal. It proves that 8 pointed star was used as a symbol by prophet Muhammad to spread Islam. The ring and its star was a whole time symbol to cover the universe and if we ignore it nothing would be left in the universe. Accordingly Islamic scholars respected it as a symbol and conveyed to the world that Prophet Muhammad was deputed to this world for guidance and eight pointed star can be regarded as a symbol for his leadership.

(f) Repeated Unit

Repeated pattern means similarity between inner and outer designs of the pattern. According to El-said 'Repeated pattern is a design to display repetition of prayers. Just like prayer is offered in same rhythm repeatedly the pattern's repetition in form designs imbibes same feelings and impression. Thick designs in setting different patterns infuse thoughts in minds of viewers similar to what they rhythmically repeat in different words on seeing certain things Islamic artists have made repeated designs to depict certain events of Islamic history for example 'The thick design spider web' of star pattern refers to migration of Prophet (PBH) from Makkah to Madina due to inhuman treatment of infidels of Makkah. He stayed hiding in a cave for three days and
nights with his companion Abu Baker to escape from clutches of hostile Makkans. One morning some infidels almost reached the opening of cave but by that time a spider set up a web on it and a dove laid eggs on its side and a wild rose bush spread its branches over it. All these things and marks forced them to believe that there was nobody inside the abandoned cave. This geometric pattern made by Muslim artists shows that they conceived all these things very minutely. The repeated motif always evokes strongly the Islamic idea of unity in everything. This piece of evidence affirms that God has planned everything, how it will be done, who will do it and this order never changes. It is He alone who protects as per His will. All these things are very beautifully depicted in such patterns.

In a philosophical set up Geometry decorated in artistic form shows very nicely the expressions of Muslim artists and puts them before us. We have seen many brilliant embodiments of Islamic concepts. The use of hexagon, star and triangle and circle in patterns and overlapping of figures and repetitive patterns point out towards laws of God and explain them. The artists within religious framework have set up these patterns logically to express their feelings to the viewers.

It is fully established that the Islamic Geometrical art is directly connected with study of mathematics, science and philosophy developed by Islam. Islamic artists have used Geometry as a symbol to give their personal expressions about God and His eternal powers. They have tried to affirm the glory and beauty of worldly objects through their imagination and ability Geometrical patterns based on mathematical rules have served very impressive
medium to these artists to explain convincingly the eternal powers of Allah. They used these patterns to express religious point of view about universal order in a very logical manner. Their repetition of pattern, balance of views and continuous efforts of communication show that they conveyed to the community honestly the messages of religion and truth through their art. They deserve appreciation for their devotion and hard work.
Plate - 1: Structure of Four Pointed Star
Plate - 2 Saleem with Scholars and Companions in a Garden
Plate 3 - Structure of Five Pointed Star
Plate - 4: Rustam and Mehar Afroz
Converse in a Garden Pavilion
Plate - 5: The Fairies call or Hamza to kill the Dragon
Plate - 6: Structure of Six Pointed Star
Plate - 7: Night Time in a Palace
Plate -8: Structure of Seven Pointed Star
Plate - 9: Structure of Eight Pointed Star
Plate - 10: Humayun Surprising his Parents
Plate - 11: Sultan Tests Sample of Milk
Hexagon in Background
Plate - 12: Structure of Hexagon
Plate - 13: Structure of Repeated Unit
Plate - 14: Young Prince and His Wife on a Terrace
Plate - 15: Diagram of four elements

Plate - 16: Four Prominent Angels
THE STAR of DAVID

Aquila

Pegasus, the GREAT SQUARE

Vega

Cancer

the Cross of Heaven

Arcturus

The Pleiades

Regulus, Leo

The Eye of God in Eridanus

SIRIUS

The three stars of Orion’s Belt

Accounts for nearly all of the major stars of the Heavens and was so created.

Plate - 17: Star of David

Plate 18 - Four Sides of Space

North

Summer Solstice Sunset

Summer Solstice Sunrise

West

Winter Solstice Sunset

Winter Solstice Sunrise

East

South
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