2. Literature review:
Polymerization is one of the most important industrial processes. Resins and emulsion are two main classes of polymer. Alkyd resins are by far the most important class of coating resins. It is estimated that alkyd resins contribute about 70% to the conventional binders used in surface coating today. The popularity of alky resins as vehicle for coatings is largely due to their unique properties such as film hardness, durability gloss and gloss retention, resistance to abrasion, etc. impacted on them through modification with drying oil [3].

The alkyd resin is a prime candidate for surface coating materials. It is generally manufactured from phthalic anhydride, poly and drying oils. Alkyd resins [4] from the largest group of the synthetic resins available to the paint industries and consumption are greater than that of the any other resins for wide verities of applications due to their low cost and versatility [5]. In order to improve properties of alkyd resins, modification with various other materials is the best method. Alkyds are formed by polycondensation of a dibasic acid and a polyhydric alcohol in presence of glyceride oil or oil derived from fatty acids and in a strict manner alkyds can be defined as oil modified polyester resin [6]. The other materials may be present in physical or chemical combination. The modification of alkyd resin with cellulose nitrate gives fast-drying, and modification of alkyd resin with chlorinated rubber gives good fire-resistance. Alkyd resin is also used in coating application [7]. Also they are compatible with most of the resin used on paint industries like rosin, epoxy, phenolic resin, amino resin, polyurethanes etc. so it can be easily modified to achieve specific properties [8]. Alkyd resins are used in both clear and pigmented, industrial and trade coating to protect and decorate a wide variety of substances. The industrial coatings or finishes generally are applied during the manufacturing process of the item which they cover. Often they are specifically formulated to meet both conditions desired for their application and the endless use of the article of manufacture. The industrial finishes include primers and top coats for refrigerators, furniture, and electrical equipment. In view of the development of these items and sectors, the positive growth is expected for paint industry [9]. There are many significant efforts that have been made to increase alkyd resin production. Many researchers have attempted to search the different sources for alkyd resin preparation. Argument [10] studied enhancing the quality of alkyd resins using methyl esters of rubber seed oil in 2004.
A lot of alkyd resins were imported to Myanmar Paint Industries every year. In order to save foreign currency outflow, it is needed to produce alkyd resin in Myanmar.

The oils that are mostly employed for alkyd resin synthesis are linseed oil, soybean oil, dehydrated castor oil, fish oil and tall oil. Castor oil, known primarily for its medicinal use as a cathartic, is now also used as a coating, surfactants, dispersants, cosmetics and lubricant etc. The unique characteristic of this oil is that it contains approximately 90% of ricinoleic acid. Ricinoleic acid has 18- carbon on its backbone with one Hydroxyl group on the 12th carbon atoms and it also has a cis double bond between the 9th and 10th carbon atoms. The presence of three functional groups such as double bonds, hydroxyl groups and esters are responsible for the attaining these applications[11]. Caster oil serves as raw materials for the manufacture of a number of industrial product like polyurethane coating, adhesives and casting compounds, to increase hydrolytic stability and electric insulating properties [12-14]. Several reviews covering agronomics marketing, processing and application aspects of this oil1-6 have already appeared. Castor oil is mostly used in the form of its modified derivatives such as dehydrated, hydrogenated, alkoxylated, sulphated and the halogenated derivatives1-6. Castor oil is also used in coating application, in surfactants, in lubricants and in the textile industries [15-18]. Castor oil is derived from the beans of the castor plants (Recinus Cummunis L.) and it is belonging to the family of Eurphorbiaceae. It is also known as Ricinus oil, oil of Palma Christi, Tangantangan oil and Neoloid. Castor oil is useful directly in protective coatings as a plasticizer in alkyd systems, and blown castor oil is an important nitrocellulose plasticizer. The drying oils owe their value as raw materials for decorative and protective coatings to their ability to polymerize or “dry” after they have been applied to a surface to form tough, adherent, impervious, and abrasion resistance films. The advantages claimed in surface coating applications include excellent odor and heat bleach ability, good drying properties, more uniform polymer structure, and lack of after-yellowing. The dehydrated castor oil is no yellowing oil and so this can give requirements of coating industries [19-20].

As one of the most widely used thermoset materials, epoxy resins have special chemical characteristics compared with other thermosetting resins: no byproducts or volatiles are formed during curing reactions, so shrinkage is low; epoxy resins can be cured over a wide range of
temperatures; and the degree of cross linking can be controlled. Epoxy resins are versatile resin having a wide range of properties such as adhesion to substance, corrosion resistance and high tensile, flexural and compressive strengths. Since the publication of the German Patent 676117 by I. G. Farben [21-26] in 1939, epoxy resin has gained its commercial interest and is being used for multitude of applications in day by day life. They are well known for light weight, good thermal and mechanical properties, and excellent adhesion to various substrates, and easy processability. All these properties make this material very attractive for use in aerospace application, automobile industry, production of tooling materials etc. [27 -31]. The ability of epoxy group, to react with a large number of reactive groups imparts versatility to the resin. Hence, it is possible to tailor and synthesize various resins through incorporating types of moieties into the backbone of molecules to suit particular needs [32 -34].Because of the versatile application of epoxy resins [35-36] they are adaptable materials for the production of surface coating materials. Ketonic resin plays a prime role in the field of coating as an excellent additive due to their high compatibility and solubility. Ketonic resin in a blend with other polymers may serve as a modifier for other polymer or vice versa, to improve properties. Preparation of alkyd-ketonic blend has been reported [37 -39] and the effect of the blend ratio on various coating properties was studied. Although the diglycylde ether of bisphenols was still the most common epoxies, they have limited applications in the structural composite field, due to their limited strength and relatively low thermal degradation. The demands of the structural composites field spurred development of high performance epoxies.

Thus a literature survey of all these compounds reviles that the clubbing of alkyd resin, epoxy resin treated castor oil (CE) and isocynated terminated castor oil polyurethane (ICOPU) may afford good surface coating material. Hence it way thought to undertake such study. Thus the present communication comprises the studies on surface coating material based on alkyd resins, CE and ICOPU resins.