

The Basic Understanding Of First Semester Students Of Mining Engineering About Commonly Used Mining Terminologies

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ABSTRACT

Before being part of a certain department of a certain qualified college, one should prepare himself to look forward anything related to his dreamt department, at least knowing and understanding the commonly used terms related to that. When you have a dream being part of mining engineering department, you should know and understand about commonly used mining engineering. So, in this occasion, the author wants to know the first semester students of mining engineering understand about commonly used mining terms. The result of this little research indicates that the first semester students of mining engineering have good basic understanding and mastering about commonly used mining terms. It can be shown by the total number of the group which has answer type of A is about 73 members of the total population of 175, it's about 41.7%. The group which has answer type of A is categorized having excellent answers, because the manner, attitude, tone, and language style that they show is very nice, chill out, but straight to the points. Their answers indicate that they understand and master the commonly used mining terms tested.

I. INTRODUCTION

One may have a dream to become an expert in whatever field he is interested in. He will do many ways to make that dream come true. If he dreams of becoming an expert in mining engineering, he must master many things about mining, minerals, and others related to mining, such as techniques of exploration, feasibility study, mine development, exploitation, surface and underground mining methods, equipment and transportations used, ore processing, mine closure, reclamation and so on. However, even though he does not have big pictures yet of the science and knowledge of mine, mining, mining engineering, the first step he must take is to know and recognise the terms commonly used in the mining world. When he decides to be part of mining in order to open his future career on mining companies or industries, it is very necessary to understand and learn about technical terms and basic knowledge that will be faced in mining engineering program study and department. By knowing and studying them well, it will be easy for him to study and deepen his knowledge, skills and abilities related to mining and mining engineering even since he is a first semester student. So, in this occasion, the writer wants to know the first semester students of mining engineering understand about commonly used mining terms.

II. COMMONLY USED MINING TERMS

Actually, there are many common mining engineering terms which are various, specific, unique and often known as technical field engineering terms. They are from the language utilised by miners at work to strengthen the unique bond between them. Sometimes there are many unique expressions, words and phrases also that apply locally in a specific community of mining region or mining industries throughout the country. In other words, it can be said that every occupation has its own, often distinct, terminology and mining is no exception. While many of those terms are used throughout the mining industry at a certain time, the use may have varied, perhaps substantially, as they are common for words to evolve in meaning at a locality to reflect the actual application.

For those who want to have career path in the mining industry or studying in the mining engineering department, first of all it would be better if you could get to know the commonly used mining terms. So, you will become familiar with all the terms used in mining, particularly those that are peculiar to either mines or minerals. Firstly, let's distinguish some commonly used mining terms and let's search their meaning and understand them by using "Dictionary of Mining, Mineral and Related Terms" (U.S. Bureau of Mines, 1996).

1. The understanding of mining terms '**mine**', '**mining**' and '**mining engineering**'.

Mine: An opening or excavation in the ground for the purpose of extracting minerals;

a pit or excavation from which ores or other mineral substances are taken by digging; an opening in the ground made for the purpose of taking out minerals (page 1994).

Mining: The science, technique, and business of mineral discovery and exploitation (page 2020).

Mining Engineering: The planning and design of mines, taking into account economic, technical, and geologic factors also supervision of the extraction, and sometimes the preliminary refinement, of the raw material (page 2022).

According to Howard L. Hartman in his book 'Introductory Mining Engineering: (page 3, 2002), he defined the terms of '**mine**', '**mining**' and '**mining engineering**' as follows:

Mine: an excavation made in the earth to extract minerals.

Mining: the activity, occupation, and industry concerned with the extraction of minerals.

Mining engineering: The practice of applying engineering principles to the development, planning, operation, closure, and reclamation of mines.

2. The understanding of mining terms '**ore**', '**orebody**', '**mineral**', '**mineral deposit**', '**outcrop**', '**soil**', '**rock**', '**coal**'.

Ore: The naturally occurring material from which a mineral or minerals of economic value can be extracted profitably or to satisfy social or political objectives (page 2184).

Orebody: A continuous, well-defined mass of material of sufficient ore content to make extraction economically feasible (page 2185).

Mineral: A naturally occurring inorganic element or compound having an orderly internal structure and characteristic chemical composition, crystal form, and physical properties (page 2002).

Mineral Deposit: A mass of naturally occurring mineral material; e.g., metal ores or non-metallic minerals, usually of economic value, without regard to mode of origin.

A mineral occurrence of sufficient size and grade that it might, under favourable circumstances, be considered to have economic potential (page 2003).

Outcrop: The part of a rock formation that appears at the surface of the ground (page 2207).

Soil: All unconsolidated materials above bedrock (page 2994).

Rock: An aggregate of one or more minerals, e.g., granite, shale, marble; or a body of undifferentiated mineral matter, e.g., obsidian, or of solid organic material, e.g., coal (page 2667).

Coal: A readily combustible rock containing more than 50% by weight and more than 70% by volume of carbonaceous material, including inherent moisture; formed from compaction and induration of variously altered plant remains similar to those in peat (page 631).

3. The understanding of mining terms '**prospecting**', '**exploration**', '**feasibility study**', '**mine development**', '**exploitation**', '**ore dressing/ore processing**', '**reclamation**'.

Prospecting: The search for outcrops or surface exposure of mineral deposits (page 2478).

Exploration: The search for coal, mineral, or ore by (1) geological surveys; (2) geophysical prospecting (may be ground, aerial, or both); (3) boreholes and trial pits; or (4) surface or underground headings, drifts, or tunnels (page 1127).

Feasibility Study: A study of this kind may vary from a preliminary estimate of mill cost to a very complete survey that may include a market analysis, mining plan with ore grades and mining cost, metallurgical testing, process development, plans for the mill, cash flow analysis, etc (page 1167).

Mine Development: The term employed to designate the operations involved in preparing a mine for ore extraction. These operations include tunnelling, sinking, crosscutting, drifting and raising (page 1997).

Exploitation: The process of winning or producing from the Earth the oil, gas, minerals, or rocks that have been found as the result of exploration (page 1127).

Reclamation: The recovery of coal or ore from a mine, or part of a mine, that has been abandoned because of fire, water, or other cause (page 2569-2570).

4. The understanding of mining terms '**surface mining**', '**open cast mining**', '**open pit mining**', '**strip mining**', '**placer mining**', '**hydraulic**'.

mining', 'alluvial mining', 'aqueous mining', 'quarry', 'auger mining'.

Surface Mining: Mining at or near the surface. This type of mining is generally done where the overburden can be removed without too much expense (page 3189).

Open Cast Mining: A working in which excavation is performed from the surface. Commonly called open pit (page 2170-2171).

Open pit mining: A form of operation designed to extract minerals that lie near the surface pit (page 2174).

Placer Mining: The extraction of heavy mineral from a placer deposit by concentration in running water (page 2359).

Strip Mining: The mining of coal by surface mining methods as distinguished from the mining of metalliferous ores by surface mining methods; the latter is commonly designated as open pit mining (page 3142).

Hydraulic Mining: Mining by washing sand and dirt away with water that leaves the desired mineral (page 1556).

Alluvial Mining: The exploitation of alluvial deposits by dredging, hydraulic, or drift mining (page 101).

Aqueous Mining: Surface mining in which the material mined is removed from the bed of a natural body of water (page 3156).

Quarry: An open or surface mineral working, usually for the extraction of building stone, as slate, limestone, etc. (page 2519).

Auger Mining: A mining method often used by strip-mine operators where the overburden is too thick to be removed economically (page 191).

5. The understanding of mining terms 'underground mining', 'room and pillar mining', 'backfill', 'longwall mining', 'cut and fill stoping', 'shrinkage stoping', 'sublevel stoping', 'sublevel caving', 'block caving'.

Underground Mining: Mining at deep down of the subsurface. This type of mining is generally done where the overburden can be removed with too much expense.

Room and Pillar Mining: In coal and metal mining, supporting the roof by pillars left at regular intervals (page 2698).

Backfill: The process of sealing and filling, and/or the material used to seal or fill, a borehole when completed, to prevent its acting as a course along which water may seep or flow into rock formations or mine-

workings. Material excavated from a site and reused for filling (page 212).

Longwall Mining: A full-extraction method for mining large panels of coal or a system of mining in which all the minable coal is recovered in one operation or a method of mining flat-bedded deposits, in which the working face is advanced over a considerable width at one time (page 1841).

Cut and Fill Stoping: A stoping method in which the ore is excavated by successive flat or inclined slices, working upward from the level, as in shrinkage stoping (page 824).

Shrinkage Stoping: A vertical, overhand mining method whereby most of the broken ore remains in the stope to form a working floor for the miners (page 2896).

Sublevel Stoping: In this mining method, the ore is excavated in open stopes, retreating from one end of the stope toward the other (page 3161).

Sublevel Caving: A stoping method in which relatively thin blocks of ore are caused to cave by successively undermining small panels (page 3160).

Block Caving: A general term that refers to a mass mining system where the extraction of the ore depends largely on the action of gravity. By removing a thin horizontal layer at the mining level of the ore column, using standard mining methods, the vertical support of the ore column above is removed and the ore then caves by gravity (page 341).

6. The understanding of mining terms 'tunnel', 'shaft', 'adit', 'drift', 'ramp'.

Tunnel: A horizontal or inclined stone drivage for development or to connect mine workings, seams, or shafts. It may be open to the surface at one end and used for drainage, ventilation, or haulage or as a personnel egress (walking or riding) from the mine workings (page 3406).

Shaft: An excavation of limited area compared with its depth; made for finding or mining ore or coal, raising water, ore, rock, or coal, hoisting and lowering workers and material, or ventilating underground workings (page 2850).

Adit: A horizontal or nearly horizontal passage driven from the surface for the working or dewatering of a mine. If driven through the hill or mountain to the surface on

the opposite side, it would be a tunnel (page 48).

Drift: An entry, generally on the slope of a hill, usually driven horizontally into a coal seam (page 986-987).

Ramp: A fault that is a gravity (normal) fault near the surface but curves through the vertical to dip in the opposite direction at depth, where the displacement is that characteristic of a thrust (page 2549).

7. The understanding of mining terms 'backhoe', 'dumpcart', 'shovel', 'wheel loader', 'bulldozer', 'dragline', 'belt conveyor'.

Backhoe: The most versatile rig used for trenching. The basic action involves extending its bucket forward with its teeth-armed lip pointing downward and then pulling it back toward the source of power (page 213-214).

Dumpcart: A cart having a body that can be tilted or a bottom opening downward for emptying the contents without handling (page 1022).

Shovel: Any bucket-equipped machine used for digging and loading earthy or fragmented rock materials (page 2894).

Bulldozer: A horizontal machine, usually mechanical, having two bull gears with eccentric pins, two connecting links to a ram, and dies to perform bending, forming, and punching of narrow plate and bars (page 439).

Dragline: A type of excavating equipment that casts a rope-hung bucket a considerable distance; collects the dug material by pulling the bucket toward itself on the ground with a second rope; elevates the bucket; and dumps the material on a spoil bank, in a hopper, or on a pile (page 976).

Belt Conveyor: A moving endless belt that rides on rollers and on which materials can be carried. The principal parts of a belt conveyor are (1) a belt to carry the load and transmit the pull, (2) a driving unit, (3) a supporting structure and idler rollers between the terminal drums, and (4) accessories, which include devices for maintaining belt tension and loading and unloading the belt, and equipment for cleaning and protecting the belt (page 284).

8. The understanding of mining terms 'mine superintendent', 'mine surveyor', 'continuous miner', 'goodman miner', 'drifter', 'driller', 'fireman', 'gang miner', 'miner'.

Mine Superintendent: A mine manager or group manager (page 2017).

Mine-surveyor: The official at a mine who periodically surveys the mine workings and prepares plans for the manager (page 2017).

Continuous Miner: A mining machine designed to remove coal from the face and to load that coal into cars or conveyors without the use of cutting machines, drills, or explosives (page 717).

Goodman miner: A continuous miner designed for driving coal headings in medium to thick seams. The machine is crawler-mounted and equipped with two triple-arm rotating cutting units and a chain conveyor (page 1382-1383).

Drifter: A drill crewman, miner, or labourer who travels from place to place, only working a short period of time at each place (page 989).

Driller: A person who has acquired enough knowledge and skill to operate and assume the responsibility of operating a drill machine (page 993).

Drill Runner: The tunnel miner who normally handles the rock drills for blasting purposes (page 998).

Fireman: In a metal mine, a miner whose duty it is to explode the charges of explosive used in headings and working places (page 1204).

Gang Miner: In bituminous coal mining, one who works in a group that pools its earnings regardless of the type of work performed (drilling, undercutting, blasting, or loading coal) (page 1316).

Miner: One who mines; such as (1) a person engaged in the business or occupation of getting ore, coal, precious substances, or other natural substances out of the earth; (2) a machine for automatic mining (as of coal); and (3) a worker on the construction of underground tunnels and shafts (as for roads, railways, waterways).

In anthracite and bituminous coal mining, one who performs the complete set of duties involved in driving underground openings to extract coal, slate, and rock, with a hand or machine drill, into which explosives are charged and set off to break up the mass. Also called coal digger; coal getter; coal hewer; digger; face-man.

In mining, one who performs the complete set of duties involved in driving underground openings to extract ore or rock: drills holes in working face of ore or rock, with a hand or machine drill; inserts explosives in drill holes and sets them off to break up the mass; shovels ore or rock into mine cars or onto a conveyor, and pushes mine cars to haulage-

ways, where they are hauled by draft animals, mine locomotive (motor), or haulage cable to the surface, or to the shaft bottom for hoisting; and installs timbering to support the walls and roof, or for chutes or staging (page 2001-2002).

9. The understanding of mining terms ‘ore or coal dressing/processing’, ‘crushing’, ‘grinding’, ‘milling’, ‘leaching’.

Ore or coal dressing/processing: for the purpose of (1) regulating the size of a desired product, (2) removing unwanted constituents, and (3) improving the quality, purity, or assay grade of a desired product. b. Concentration or other preparation of coal or ores for smelting by drying, flotation, or magnetic separation. c. Improvement of the grade of coal or ores by milling, flotation, sintering, gravity concentration, or other processes.

Crushing: Size reduction into relatively coarse particles by stamps, crushers, or rolls (page 793).

Grinding: Size reduction into fine particles; comminution (page 1418).

Milling: The grinding or crushing of ore. The term may include the operation of removing valueless or harmful constituents and preparation for market (page 1990-1991).

Leaching: The separation, selective removal, or dissolving-out of soluble constituents from a rock or orebody by the natural action of percolating water (page 1763).

10. The understanding of mining terms ‘waste’, ‘gangue’, ‘sludge’, ‘slurry’, ‘muck’, ‘slush’.

Waste: The part of an ore deposit that is too low in grade to be of economic value at the time of mining, but which may be stored separately for possible treatment later (page 3543).

Gangue: The valueless minerals in an ore; that part of an ore that is not economically desirable but cannot be avoided in mining. It is separated from the ore minerals during concentration (page 1316).

Slurry: The fine carbonaceous discharge from a mine washery (page 2972).

Sludge: A semifluid, slushy, murky mass of sediment resulting from treatment of water, sewage, or industrial and mining wastes; often appearing as local bottom deposits in polluted bodies of water (page 2967).

Muck: Unconsolidated soil, sand, clay, or loam encountered in surface mining; generally, earth which can be moved without

blasting or useless material produced in mining (page 2070).

Slush: To fill mine workings with sand, culm, or other material, by hydraulic methods or to move ore or waste filling with a scraper (slusher) hoist (page 2973).

III. RESULT

The population is first semester students of mining engineering program study who takes English courses in this semester (odd semester of academic year of 2021-2022), they are about 175 students. The research is done by giving them personal interview as oral quiz task. The population is divided into 5 big groups, then from each of these big groups further divided into three small groups. Later on, these small groups will be given the same 10 types of questions.

Each interviewee must answer two mandatory questions, the first question is about mining terms of 'mine', 'mining', and 'mining engineering' and the second question is about the mining terms of 'ore', 'orebody', 'minerals', 'mineral deposits'. As mining engineering students, they must know and understand these mining terms as their basic knowledge although they are still at first semester. Next, they have to answer eight more questions about mining terms which are more varied. Here is the example of one set of ten questions:

Question 1: Tell me the difference among these mining terms of ‘mine’, ‘mining’, and ‘mining engineering’

Question 2: What do you know about the difference between ‘ore’ and ‘mineral’ and between ‘orebody’ and ‘mineral deposit’?

Question 3: Show me the five stages of mining as you know!

Question 4: What do you learn about surface mining? How many types do you know?

Question 5: How about underground mining, describe it and tell me one type which you know best!

Question 6: Have you heard about mining terms of ‘tunnel’, ‘shaft’, ‘adit’, ‘drift’ and ‘ramp’? Explain me what you know about them!

Question 7: How many mining equipment do you know? Mention three at least and describe them all in general!

Question 8: What is miner? What is continuous miner? What is Mine Superintendent?

Question 9: Tell me what you know about ore processing! Then, show me the difference among crushing, grinding and milling!

Question 10: Explain me about mining terms related to waste, gangue, slurry and sludge!

That example of ten questions is given to interviewees of small groups, and from the various types of answers obtained, it can be grouped once more based on the similarity of the answer contents, even though the way to answer the questions performed by each interviewee is so differently. The results of the interview show that there are 4 types of answers (A, B, C, and D). This can be seen from the following example of the answers:

1. Answer types of A:

Answer 1: As I know, mam, **mine** is an excavation to extract minerals from the earth, **mining** is an activity related to the mineral extraction done by the company, whereas **mining engineering** is knowledge or science applied in extracting minerals from the earth.

Answer 2: Okay, let me answer and correct me if I'm wrong. **Ore** is a mineral deposit which has value to be mined. **Orebody** is a naturally shaped mass of material of ore content. **Mineral** is a compound happened naturally which has internal structure as like chemical composition and physical properties. **Mineral Deposit** is mass of mineral material which has economic value.

Answer 3: As I learned myself before, when I have a curiosity about mining, I read and I know about five stages of mining: One, **prospecting and exploration**, it is an activity to search mineral in a certain area based on geological history, and do some surveys, both geological and geophysical surveys. Two, **feasibility study**, it is an activity to determine about the ore value, the mining cost, ore processing cost, and the techniques used to extract the minerals. Three, **mine development**, it is activity to prepare mining operations. Four, **exploitation**, it is a process of taking out of the mineral deposit

after feasibility and mine development are done.

Five, **mine closure and reclamation**, when the mine is not productive anymore, then it is closed and the next step is doing a reclamation, it is an activity to make the closed mine area back to be green and natural.

Answer 4: As I know, mam...**surface mining** is mining operation done at the surface because the mineral is at a shallow depth of the earth. The types of surface mining, as I know, One, **open pit mining**, it is mining operation to extract mineral near the surface.

Two, **hydraulic mining**, it is mining operation to extract mineral by washing the mineral and dirt with water.

Three, **aqueous mining**, it is deep sea mining, the taking out of mineral lied in the deep sea by utilizing modern machine with high sophisticate technology.

Answer 5: Okay, mam...**underground mining** is mining operation done in the deep down of the underground because the minerals deeply buried down there. The type of underground mining that I know best is **longwall mining**, because when you asked us to watch mining video, it was about "How do they do it – Coal Mining" ... from that video, mam... we could learn about the methods used to extract the coal, they used longwall mining method. The shearer pass through the face, excavating the ore within an indicated extraction height, then the mined material is loaded onto the conveyor.

Answer 6: I've only heard and know about **mining tunnel**, mam. If I'm not mistaken it is a horizontal hole of the underground passage that is open at both ends. The rest of mining terms that you mentioned, mam...honestly speaking I'm just heard now. I'm so sorry, mam. Later on, I will learn and search any information about them from any sources for my benefit in the future. Thank you, mam.

Answer 7: The mining equipment that I know are **dragline, shearer, continuous miner, excavator, backhoe, dump truck, shovel loader, bucket wheel loader**. They are about 8 equipment and actually, I am not so sure about the exact functions of each equipment, but as I know that almost all of them are used for digging and loading the mining material.

Answer 8: Alright, mam... I'm a little bit sure that **miner** is a person who mines, but miner is one who do any jobs on any mining activities, he is capable performing set of duties driving both surface and or underground mining. **Continuous miner** is a giant monster machine which is able working round o'clock. For the last one is **Mine Superintendent**. If I may say, he is boss of the boss, because he is mine manager or group manager.

Answer 9: Okay, mam. I think I should be honest. Actually, I have no idea about the ore processing, but I like to share my opinion, **ore processing** is a way to remove impurities and to get pure product that will have high quality and value. I think my explanation is not enough, so I'll learn and search the information related to ore processing later on, I'm sure it will give me a good advantage in the future. And for the mining terms of '**crushing**', '**grinding**', and '**milling**' if I'm not wrong, all of those three is about ore/mineral/mining material size reduction, mam. Please, correct me, mam, I like learning and getting this information from you. Thank you.

Answer 10: Forgive me, mam ... and honestly, I have no idea at all about waste and the other terms you asked me, mam. But, as far as I know, **waste** is material which has low grade or even no value at all, mam. Once again, correct me if I'm wrong. Thank you.

2. Answer types of B:

Answer 1: Okay, mam, I will try to answer ... **mine** is an excavation of minerals, **mining** is an activity, and **mining**

engineering is education level in university.

Answer 2: I'm sorry, mam. I'm not so sure about my answer, but let me try. **Ore** is mineral deposit. **Orebody** is a huge mass contain ore. **Mineral** is a chemical compound occur naturally in the earth. **Mineral Deposit** is ore itself, mam.

Answer 3: Five stages of mining, mam...uhm well...if I'm not mistaken, they are: First, **prospecting**, looking for mineral.

Second, **exploration**, surveying prospecting area

Third, **exploitation**, extracting process

Fourth, **reclamation**, rehabilitation of mined out area

Fifth, sorry mam, I've forgot the last one...

Answer 4: **Surface mining** is the process of excavating any near-surface ore deposit.

The other types of surface mining are:

First, **strip mining**, it is the process of excavating mineral by clearing and top soil removal.

Second, **alluvial mining**, it is the process extracting alluvial deposit.

Third, **aqueous mining**, it is deep sea mining.

Answer 5: I don't know exactly what the answer is, mam...but I think **underground mining** is the contrary of surface mining, so it is done because the location of the mineral is not at near the surface. I'm sorry, mam, I have no idea about any types of underground mining, but as I know to do the underground mining, we should do drilling and blasting to make a **tunnel** or a **cave** or something like that. So, I'm so sorry, mam...I've disappointed you this time.

Answer 6: Yes, mam. When answering your question before about underground mining, actually from my explanation, I have mentioned about **tunnel** and I think it is such a cave but it has open hole in both ends. My second answer is no, not yet, mam... I haven't heard any of those mining terms before, mam. So sorry.

Answer 7: Three mining equipment that I know are **backhoe, shovel, and bulldozer**, mam. The function of those equipment is to digging and loading mining material, mam.

Answer 8: Okay, mam. **Miner** is a person who mines. **Continuous miner** is a machine which works non-stop. **Mine Superintendent** is a mine manager. That's all I know.

Answer 9: Alright, mam ...as I know **ore processing** is a way to make ore pure, having good quality and good price. In other hand, crushing, grinding, and milling is size reduction, mam. That's all I know.

Answer 10: I never heard for any mining terms like you said, mam, except the term 'waste', but to be honest I can't explain correctly what waste is. But, according to my opinion, mam...**waste** means rubbish or garbage, mam. So, I think the other terms you asked me, I think they have meaning related to rubbish too, mam. Sorry, if I make mistake, mam. Thank you.

3. Answer types of C:

Answer 1: Uhm...wait mom...let me think...uhm... **mine** is tambang, **mining** is penambangan, and **mining engineering** is teknik pertambangan.

Answer 2: Sorry, may I use Bahasa, mam? **Ore** is bijih, **orebody** is badan bijih, **mineral** is mineral...sorry I don't know, mam. And, **mineral deposit** is cadangan mineral, mam.

Answer 3: Uhm... what, mam...oh! **Five stage of mining** yaa, mam. I don't know, mam, I'm still semester one, mam...sorry, mam...

Answer 4: **Surface mining**...yaa, mam... uhm..anu, mam...tambang terbuka, mam... jenis-jenisnya...uhm...apay aa...uhm...open pit, mam...uhm...terus...uhm, I don't know, mam...

Answer 5: I know, mam, if not wrong...uhm...**underground mining** is satunya tambang terbuka ...eh apa...uhm lawannya, uhm itu... tambang bawah tanah, yaa mam, uhm sorry, mam... I can't

explain yang lainnya, mam...sorry...

Answer 6: Never, mam. I only know **tunnel**, mam, it is terowongan atau lorong, mam. It is for road and lalu lalang apa saja, bisa bijih atau mining material, mam.

Answer 7: Mining equipment...yaa, mam...one, **backhoe**, mam... it is for menggali, mam... two, uhm ... wait, mam...wait...oh, yes! **excavator**, mam...it's for menggali juga, and ... three, **dump truck**, mam... for alat angkut material, mam...that's all.

Answer 8: I think, mam, **miner** is petambang. **continuous miner** is petambang yang kerja terus menerus dan **mine superintendent** itu setara manager, mam.

Answer 9: Sorry yaa, mam. Sepertinya I can't menjelaskan, because I don't know about **ore processing**, and **crushing, grinding, and milling** juga.

Answer 10: In my thinking, **waste** berarti sampah, mam... and I don't know arti istilah yang lainnya, mam. Very sorry, mam...

4. Answer types of D:

Answer 1: Oke, mam... **mine** is tambang, **mining** is penambangan, **mining engineering** is jurusan, mam.

Answer 2: Sorry I don't know, mam ... but...uhm...ore setahu saya artinya bijih, mam, and mineral itu yaa mineral, mam.

Answer 3: Uhm... maaf, mam. I don't know, mam...boleh **pass** yaa, mam...

Answer 4: Sorry, **pass** yaa, mam...oh... tambang terbuka, mam...that's it, mam...sorry...

Answer 5: Uhm...**underground mining** is tambang bawah tanah, mam...tipenya...uhm I don't know...pass lagi, mam ...

Answer 6: No, mam... uhm but **tunnel** is terowongan, mam.

Answer 7: uhm... **backhoe**, ...uhm... and **dump truck**, ... uhm and I don't know, mam.

Answer 8: **Miner**, yaa mam, itu petambang. **continuous miner** itu I don't know, mam ... and **mine superintendent** itu juga I don't know, mam.

Answer 9: uhm ... sorry, mam...boleh **pass** kan, mam...

Answer 10: **Pass** lagi yaa, mam...very sorry yaa, mam...really very sorry, mam...

Based on the author's analysis, it can be drawn as follows:

- a. The group which has answer type of A is categorized having **excellent** answers, because as far as the author remember the manner, attitude, tone, and language style that they show is very nice, chill out, but straight to the points. Their answers indicate that they understand and master the commonly used mining terms tested.
- b. The group which has answer type of B is categorized having **very good** answers, because the manner, attitude, tone, and language style that they show is logic, concise, clear, and straightforward too. Their answers indicate that they also understand and comprehend the commonly used mining terms tested.
- c. The group which has answer type of C is categorized having **good** answers, because the way, the manner, attitude, tone, and language style that they show is simple but honest, even though they used mix-up language (English and Bahasa), but their answers show that they understand about the commonly used mining terms tested.
- d. The group that has answers type of D is categorized as having **fair** answer, because the manner, attitude, tone, and language style they show are inappropriate and unclear, moreover their answers indicate that they do not understand about commonly used mining terms tested, even though they use Bahasa more rather than English.

The result of this analysis obtained is, as follows:

- 1) The total number of the group which has answer type of A is about 73 members of the total population of 175, it's about 41.7%.
- 2) The total number of the group which has answer type of B is about 47 members of the total population of 175, it's about 26.8%.
- 3) The total number of the group which has answer type of C is about 47 members of the total population of 175, it's about 26.8%.
- 4) The total number of the group which has answer type of D is about 8 members of the total population of 175, it's about 4.7%.

IV. CONCLUSION

Based on the result of the little research analysis above, it can be concluded that the first semester of mining engineering students has good basic understanding and mastering about commonly used mining terms.

By knowing and studying the commonly used mining terms well, it will be easy for students who study at mining engineering to deepen their knowledge, skills and abilities related to mine, mining and mining engineering. It can be a guarantee for them to finish their study on time or even less than four years, and more over they will easily find a barrier-free path when they like to step up their career in the well-known qualified mining company.

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