


<b>Kafrelsheikh University</b>		<b>Semester: 2<sup>nd</sup> Semester</b>
<b>Faculty of Engineering</b>		<b>Final Examination</b>
<b>Mechanical Engineering</b>		<b>Date: June 15<sup>th</sup>, 2019</b>
<b>Preparatory Year</b>		<b>Time allowed: 2 hour</b>
<b>Inst. : Assoc. Prof. M. Abou Al-Sood Assist. Prof. A. H. Saeed</b>		<b>Full Mark: Part I : 22.5 Part II: 22.5</b>
<b>Subject: Technical English Language (HUM0201)</b>		
<b>Questions and Answers Booklet</b>		

**Part (I) Dr. Maher Abou Al-Sood**

- (a) This exam measures ILOs no.: a10, b4, b3, b11, c1, and d3  
 (b) No. of pages: 6 - No. of questions: 17.  
 (c) This is a close book exam.  
 (d) Clear and neat writing and answers are required. In general, marks will not be assigned for writing and answers that require unreasonable (in the opinion of the instructor) effort to decipher.  
 (e) Ask for clarification if any question statement is not clear to you.  
 (f) The weight of each problem is indicated.  
 (g) The exam (Parts I and II) will be marked out of 22.5. Part (I) contains 150 points. Each point weights (0.2) mark. So, there is a bonus of 7.5 marks for this part.

**1. Match the GPS applications (1-6) to the descriptions (a-f) (5 Points)**

- |                            |                                                          |   |
|----------------------------|----------------------------------------------------------|---|
| 1. avionic equipment       | a. navigation and safety at sea                          | 6 |
| 2. topographical surveying | b. setting out position and levels of new structures     |   |
| 3. geological exploration  | c. mapping surfaces features                             |   |
| 4. civil engineering       | d. applications in mining and the oil industry           |   |
| 5. maritime applications   | e. highway navigation and vehicle tracking               |   |
| 6. GPS in cars and trucks  | f. air traffic control, navigation and autopilot systems |   |

**2. Match the verbs (1-9) to definitions (a-i) (9 Points)**

- |                |                                            |   |
|----------------|--------------------------------------------|---|
| 1. raise       | a. carried (objects, over a distance)      | 9 |
| 2. support     | b. hold something firmly / bear the weight |   |
| 3. transported | c. climb down                              |   |
| 4. Attached    | d. provided with energy / moved by a force |   |
| 5. connecting  | e. joining                                 |   |
| 6. ascend      | f. driven / have movement directed         |   |
| 7. controlled  | g. fixed                                   |   |
| 8. descend     | h. climb up                                |   |
| 9. powered     | i. lift / make something go up             |   |

**3. Complete the following tips from the briefing by underling the correct emphasising word.**

- |                                                                                            |   |
|--------------------------------------------------------------------------------------------|---|
| 1. We've come up with a <b>completely/significantly</b> unique profile.                    | 8 |
| 2. It <b>completely/dramatically</b> reduces vibration.                                    |   |
| 3. Machines like these can never be <b>entirely/highly</b> free from vibration.            |   |
| 4. The new design run <b>dramatically/extremely</b> smoothly.                              |   |
| 5. Another advantage of the new profile is that it's <b>considerably/entirely</b> lighter. |   |
| 6. So, compared with our previous range, it's <b>highly/totally</b> efficient.             |   |
| 7. Trials so far suggest the design is <b>completely/exceptionally</b> durable.            |   |

8. We expect it to be **entirely/significantly** more reliable than rival units.

**4. Match the words (1-6) in the first column to the synonyms (a-f) in the second column**

- |                    |    |                            |
|--------------------|----|----------------------------|
| 1 enhanced         | a. | decreases                  |
| 2 superior         | b. | Better / the best          |
| 3 eliminates       | c. | improved                   |
| 4 conventional     | d. | Standard / usual           |
| 5 Energy-efficient | e. | gets rid of                |
| 6 reduces          | f. | Has low energy consumption |

6
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**5. Match the materials from the first column (1-8) to the definitions (a-h) in the second column**

- |                    |    |                                                                      |
|--------------------|----|----------------------------------------------------------------------|
| 1. softwood        | a. | A metal used to make brass, and in galvanized coating on steel       |
| 2. Stainless steel | b. | The predominant metal in steel                                       |
| 3. iron            | c. | A type of steel not needing a protective coating, as it doesn't rust |
| 4. bronze          | d. | A dense, poisonous metal                                             |
| 5. lead            | e. | Rocks from which metals can be extracted                             |
| 6. hardwood        | f. | An alloy made copper and tin                                         |
| 7. zinc            | g. | Timber from pine trees                                               |
| 8. ore             | h. | Timber from deciduous trees                                          |

8
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**6. Match the materials from the text (1-7) to the descriptions (a-g).**

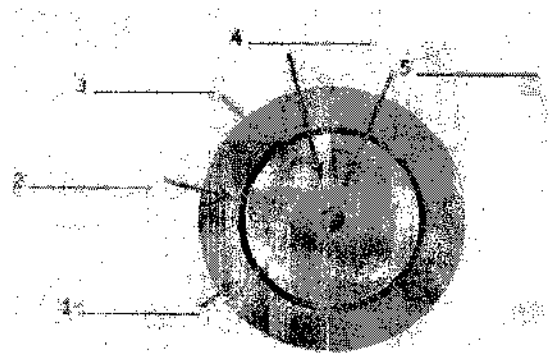
- |                 |    |                             |
|-----------------|----|-----------------------------|
| 1. polymer      | a. | material that are not metal |
| 2. exotic       | b. | iron and steel              |
| 3. non-metallic | c. | combination of materials    |
| 4. alloy        | d. | mixture of metals           |
| 5. ceramics     | e. | plastic materials           |
| 6. ferrous      | f. | mineral transferred by heat |
| 7. compound     | g. | rare or complex             |

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**7. A. The figure shows cross section of high voltage cable. Label this section with parts (a-e)**

- Conductor
- Insulation
- Armoured protection
- Water proof member
- Outer jacket

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**B. Match the parts of cable (a-e) in question (2.A) to the following categories of materials (1-5). You will need to use some parts more than once**

- |                        |                            |
|------------------------|----------------------------|
| 1. non-metallic _____  | 4. Non-ferrous metal _____ |
| 2. metallic _____      | 5. Polymer-based _____     |
| 3. ferrous metal _____ |                            |

**8. Match the automotive parts (1-5) to descriptions (a-e)**

- |                    |    |                                                               |
|--------------------|----|---------------------------------------------------------------|
| 1. Sealing gaskets | a. | Sheets inserted between parts to prevent gas or fluid leakage |
|--------------------|----|---------------------------------------------------------------|

- |                         |                                                         |
|-------------------------|---------------------------------------------------------|
| 2. Brake pads           | b. Pneumatic envelopes in contact with the road surface |
| 3. Bullet-resist armour | c. Flexible bands used in transmission systems          |
| 4. Drive belts          | d. Protective barriers capable of resisting gunshots    |
| 5. Tyres                | e. Pads pressed against discs to induce deceleration    |

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**9. Complete the table with adjectives and nouns**

Adjective	Noun
1. tough	_____
2. elastic	_____
3. _____	resistance
4. _____	stability
5. durable	_____
6. _____	fragility
7. flexible	_____
8. heavy	_____
9. brittle	_____
10. rigid	_____

10
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**10.A.**

Complete the following extracts from the description using the correct form of the words in the box

flush with      groove      hole    pin    recess      ridge      set back
----------------------------------------------------------------------------

- .....there is a circular slot at the top. It's obviously a blind \_\_\_\_\_. It doesn't go right through.
- .....there are two plastic \_\_\_\_\_. One on either side of the plug casing, and they slot into corresponding \_\_\_\_\_ at each side of the socket. In addition, the centre of the socket is \_\_\_\_\_. So rather than being \_\_\_\_\_ the front of the socket, on the same face, the circular area that receives the plug is \_\_\_\_\_ from the surrounding casing .....
- These covers only open when pressure is applied to both by the two \_\_\_\_\_ of the plug simultaneously.

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**B.**

Complete the following definitions using the words in the box

abrasive wheel      guillotine      hole-saw      kerf      punch      toothed blade
--------------------------------------------------------------------------------------

- A \_\_\_\_\_ makes straight cuts by applying pressure to shear the material
- A \_\_\_\_\_ makes holes by applying pressure to shear the material
- A \_\_\_\_\_ has sharp edges for cutting or milling
- A \_\_\_\_\_ is the width of the saw cut
- A \_\_\_\_\_ cuts a circular piece to remove an intact core of material
- A \_\_\_\_\_ has a hard, rough surface for cutting or grinding

6
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**C. What does the abbreviation UHP waterjet stand for?**

\_\_\_\_\_

2
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**D. Complete the following table using the words in the box.**

Adhesive      bolt      clip      rivet      weld
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Mechanical fixings

Non-mechanical fixings

_____
_____
_____

_____
_____
_____

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E. Complete the following descriptions of how the garden chair airship was assembled by underlining the correct words

1. A quantity of helium gas was **contained** / **suspended** inside each balloon.
2. A tube was **inserted** / **projected** inside the opening of the balloons to inflate thrm.
3. The balloons were **situated** / **projected** over the chair, in a large cluster.
4. The chair was **contained** / **suspended** under the balloons by ropes.
5. Arm rests, **contained** / **located** beside the pilot, at each side, helped to hold him in place.
6. The landing gear, **inserting** / **projecting** below the seat, considered, simply, of the chair legs.
7. The pilot was **positioned** / **projected** underneath the balloons, so his weight was low down.

7
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11. Complete the following phrases from the description using adjectives based on the words in the brackets

- (a) ..... there are \_\_\_\_\_ pins for live and neutral (circle).
- (b) ..... the earth slot's got a flat base with one side \_\_\_\_\_ over to form a semi-circle. (round)
- (c) This one has \_\_\_\_\_ blades for live, neutral, and earth ..... (rectangle)
- (d) ..... it has a \_\_\_\_\_ slot to receive the earth pin. (cylinder)
- (e) ..... the pins are arranged in \_\_\_\_\_ configuration. (line)
- (f) ..... they're laid out in \_\_\_\_\_ configuration. (triangle)

6
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12. Complete the following definitions using the types of drawing in the box.

Cross-section	elevation	exploded view	note	plan	schematic	specification
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- 1) \_\_\_\_\_ gives a view of the whole deck, from above.
- 2) \_\_\_\_\_ gives a view of all the panels, from the front.
- 3) \_\_\_\_\_ gives a deconstructed view of how the panels are fixed together.
- 4) \_\_\_\_\_ gives a cutaway view of the joint between two panels.
- 5) \_\_\_\_\_ gives a simplified representation of a network of air ducts.
- 6) \_\_\_\_\_ gives a brief description or a reference to another related drawing.
- 7) \_\_\_\_\_ gives detailed written technical descriptions of the panels.

7
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13. Complete the following definition using the types of drawing in the box.

design brief	preliminary drawing	sketch	working drawing
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- 1) A \_\_\_\_\_ is a rough drawing of initial ideas, also used when production problems require engineers to amend details and issue them to the workforce immediately.
- 2) A \_\_\_\_\_ is a written summary intended to specify design objectives.
- 3) A \_\_\_\_\_ is an approved drawing used for manufacturing or installation. There is often a need to revise these drawings to resolve production problems. In this case, amended versions are issued to supercede the previous ones.

5
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- 4) A \_\_\_\_\_ is a detailed drawing that colleagues and consultants are invited to approve if they accept them, or comment on if they wish to request any changes.

14. Match the verbs (1-9) to the definitions (a-i)

1. Temp. gage	a. an electrical motor used to turn over an internal combustion engine in order to start the engine
2. radiator	b. A belt in a diesel engine which connect several pulleys in order to turn different engine devices in a synchronized manner - if this belt fails suddenly, fuel will be injected into the pistopn cylinders when the pistons are in the wrong positions, and the subsequent uncynochronized explosion can cause seious damage to the engine.
3. electrical connect	c. temperatyre gauge - a display which shows the temperature of the coolant water circulating in the engine
4. starter motor	d. An automatic system which takes over in order to prevent a problem when manual system is opertaed improperly for example in antilock braking system (ABS) on cars, if the driver brakes too hard, causing the wheels to lock, the ABS will automatically control the brakes through a software control system
5. manufacturing deffect	e. Situated in front of the radiator, this is activated to blow air over the radiator and keep the water cool
6. override	f. Moves water around the engine block to cool it
7. water pump	g. At the front of the vechile, this dissipates the heat from the water into the air. When the vechile is moving, air flows over it providing the required cooling effect - but when the vechile is stationary and the engine is still running, for example in a traffic jam, as there is no airflow, there is a danger that the water will become too hot and boil.
8. fan	h. Physical connection between two electric conductors, for example the connection between the end of a wire and a component
9. distribution belt	i. A problem or fault with a component due to a problem when it was manufactured - not a problem has occurred due to wear

9

15. State what are the five engineering enemies:

- 1.
- 2.
- 3.
- 4.
- 5.

5

**16. Complete more extracts from the talk using the correct form of a verb in box 1 and a word in box 2**

1.  
Below clog cut leak run wear work

2.  
loose up out

1. ... the radiator problem didn't cause the engine to \_\_\_\_\_
2. ... a nut \_\_\_\_\_ on a radiator pipe, which resulted in coolant liquid \_\_\_\_\_
3. ... the engine \_\_\_\_\_ on one of the corners.
4. ... he switched off before the system had \_\_\_\_\_ of coolant.
5. ... the openings in the side pods always \_\_\_\_\_ with dirt.
6. The tyres weren't close to \_\_\_\_\_

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**17. Complete the following pairs of sentences using the verbs in the box. (5 Points)**

advise clarify clash propose request

1. The components are in each other way = The components \_\_\_\_\_
2. Any conflicting details must be queried = You must \_\_\_\_\_ any.
3. Please ask for more information = Please \_\_\_\_\_ more information.
4. Please instruct the supplier to send the parts to this address = Please \_\_\_\_\_ the supplier.
5. Can I suggest a solution to the problem? = Can I \_\_\_\_\_ a solution.

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Kafrelshiekh University  
 Faculty of Engineering  
 Final Second Term Exam  
 Preparatory Year  
 Name:



Date: June 15, 2019  
 Technical Language  
 Time allowed: two hours  
 Full Mark: 45 marks  
 Academic Number:

**Answer All the Questions:**

**Question No. one ( 5marks):**

**Match the following title chapter on left with the short description of the contents of each chapter on the right.**

1. Introduction to plastic	a. pushing heated plastic through a nozzle
2. Physical properties	b. using compressed air to blow bubbles inside the plastic
3. Thermoplastic	c. combing carbon atoms
4. Thermoset	d. heat hardening process
5. Features plastic	e. safe disposal of plastic
6. Plastic products	f. from audio cassette (A) to zips (z)
7. Extrusion processes	g. monomer and polymer
8. Injection molding processes	h. heat softening and cool-harden processes
9. Blow molding	i. squeezing heated plastic into a mold
10. Environmental aspects of plastics	j. attractive, flexible, lightweight, ..... The ideal material

(1-), (2-), (3- ), (4- ), (5- ), (6- ), (7- ), (8- ), (9- ), (10- )

**Question No. two ( 5 marks):**

**Below is an extract from a letter from an insurance agent to a manufacturing company about regulations. Complete the extract by choosing the correct word from the box.**

needn't, permit, permitted, forcing, have, supposed, prohibited, require, must (2) , banned

Following my visit to your factory last week, I am writing to confirm what we discussed. It is important that these points are followed; otherwise the insurance cover will not be valid.

All empty crates (a) ----- not be stacked in the production area. They are a health and safety problem and we will not (b) ----- you to leave them there.

The government has (c) ----- the dumping of waste chemicals in waste sites and are (d) ----- companies to apply for a license for waste disposal. However, prior to disposal. These chemicals (e) ---- to be stored in sealed containers in a designated area away from the main plant.

Containers that contain flammable materials (f) ---- be at least 100 meters from the building.

Present air conditioning systems are adequate, so you (g) ----- make any changes there.

Walls are (h) ----- to be kept clear of dust, so we (i) ----- you to arrange to have the walls dusted and cleaned.

The use of water fire extinguishers is still (j) -----, but they are (k) --- from use near or on electrical equipment.

**Question No. three (6 marks):**

**Answer the following questions.**

1. There are many forms of energy. Mention five of them and comment on each.
2. Why do architects depend on structural engineers?
3. Compare between “energy” and “power”.
4. What is the significance of the code of ethics in the engineering profession ?
5. Mention three different machines that generate power.
6. Specify the job of the mechanical engineer in automotive industry and aerospace industry.

**Question No. four( 5 marks):**

**Choose the correct word or phrase in each of the following.**

1. Every energy cycle involves a (transform, transport, transfer ) of heat .
2. Electrical energy is changed to mechanical energy by electric (motors, generators, transformers)



3. An ideal black body would ( reflect, emit, absorb ) all the heat falling on it.
4. heat transfer by conduction through a solid by virtue of (temperature difference, pressure difference, motion of the surrounding air)
5. This process is very inefficient because of the volume of (scrap, error, wastes) left over.
6. Heat (sources, exchanger, sinks) are used with electronic devices to allow internal heat to dissipate more efficiently.
7. Instruments which measure wind speed are called (speedometers, manometers, anemometers).
8. Codes of ethic and their acceptance by profession will ( finally, quickly, necessarily, as a matter of fact) determine the public's confidence and trust in the engineering profession.
9. If you transfer a file a remote computer to your computer, you ( download, upload, run)
10. breach: (involvement, engagement, infringement, adjustment).

**Question No. five ( 5 marks):**

**Read the following sentence and answer the required between the brackets:**

1. Polythene sheets are laid over the wet concrete. This prevents the concrete from drying out too quickly. (link the two sentences using the final-ing clause)
2. Compression takes place in the inlet duct. Some kinetic energy of the flowing air is converted into heat. (link the two sentences using the final-ing clause)

3. The experimental results are consistent ..... The theoretical analysis.  
( select the correct word from (for, at, with, in, on, from, about)).
4. The petrol is mixed with air and injected into the cylinder, -----a spray. (Use of the word " as" to complete the statement)
5. **Rearrange the letters of six sources of energy:**  
1. uns    2. fbielou    3. Dwni    4. Piumutoln    5. Weva    6. peumroetl

**Question No. six ( 2 marks):**

**Translate into Arabic:**

Transportation engineers plan and supervise the construction of systems used to move people and materials. An example of their creative ability is interstate highway system which has travel by automobile, especially near large metropolitan areas, safer, faster, and more convenient. The need for reliable, economic mass transit and rapid transit systems will occupy transportation engineers for decades to come.