

## FRM106, Production Technology, First Year, Spring 2020 - Corrective (Prof. Dr. Ahmed El-Assal)

Write a brief essay about one of the following subjects.

□ على كل طالب ان يتخير احد الموضوعات وعلى الا يقل البحث عن 5 صفحات ولا يزيد عن عشر صفحات. ويتم كتابة البحث طبقا للتعليمات المنشورة على موقع الكلية.

### SUBJECTS FOR DISCUSSION

#### SUBJECT 1

□ Write short notes on:

i. *Pig iron*

ii. *Grey cast iron*

iii. *White cast iron*

iv. *Ductile cast iron*

v. *Malleable cast iron.*

□ What is brass? Describe the composition, properties and uses of important types of brasses?

□ Write short notes on the following:

i. *Slush casting*

ii. *Pressed casting*

iii. *De Lavaud process for centrifugal casting*

iv. *Moore sand spun process for centrifugal casting.*

□ Write Short notes on:

i. *Drop forging*

ii. *Press forging*

iii. *Flattening*

iv. *Smith's Forge*

v. *Pedestal grinder*

vi. *Power hammers*

□ Write short notes on:

i. *Welding rods*

ii. *Fluxes*

iii. *Gas flames*

iv. *Working of pressure regulators*

v. *Working pressure of gases in H.P and L.P welding and cutting.*

□ Describe using appropriate drawings one of the conventional turning machine, with most common tools used and basic operations.

## **SUBJECT 2**

Write short notes on:

- i. Stainless steel*
- ii. High speed steel*
- iii. Designation of steels.*

What is bronze? Describe the composition, properties and uses of different types of bronzes?

List the defects generally occurring from the following, stating the precautions necessary to prevent them:

- i. Improper pouring technique,*
- ii. Use of defective gating system*
- iii. Poor or defective cores,*
- iv. High moisture content in sand.*

Sketch and describe the following forging tools

- i. Anvil.*
- ii. Swage Block,*
- iii. Set hammers*
- iv. Punches,*
- v. Drift, and*
- vi. Hardie*

Write short notes on the following:

- i. Hoses*
- ii. Torch tip*
- iii. Welding torch and its parts*
- iv. Welding goggles*
- v. Wire brush*
- vi. Filler rod in gas welding*

Describe using appropriate drawings vertical milling machine, with most common tools used and basic operations.

## **SUBJECT 3**

What is wrought iron? Discuss in brief its chemical composition, properties and applications.

Discuss the properties and uses of the following non-ferrous metals:

- i. Lead*
- ii. Tin*
- iii. Nickel.*
- iv. Plutonium*

Discuss briefly the causes and remedies of the following casting defects:

- i. Blow holes,*
- ii. Porosity,*
- iii. Hot tears*
- iv. Shrinkage cavities,*
- v. Scabs*
- vi. Gas porosity*

Write Short notes on:

- i. Drop forging*
- ii. Press forging*
- iii. Flattening*
- iv. Smith's Forge*

v. *Pedestal grinder*

vi. *Power hammers*

Write short notes on:

Arc crater

Arc blow

Electrode

Flux

Describe using appropriate drawings a horizontal milling machine, with most common tools used and basic operations.