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EET 131

Exam I

1. *World's first engineering works were constructed by:*
 - c. **Mesopotamians**
2. *The great king who ruled Babylonia for 43 years and compiled comprehensive construction codes that bears his name:*
 - a. **Hammurabi**
3. *The wheeled cart is said to have first appeared in this area:*
 - c. **Mesopotamia**
4. *These people are best remembered for their abstract logic and ability to theorize the knowledge of the past:*
 - d. **Greeks**
5. *Were practical builders who relied more on experience than on mathematical logic:*
 - d. **Romans**
6. *The best known work of the ... builders are the Pyramids:*
 - c. **Egyptian**
7. *A great artist, architect, and experimental scientist of the Italian Renaissance; he is remembered for his conceptual design rather than practical engineering work:*
 - d. **Da Vinci**
8. *These inventors flew their airplane on a journey that lasted 12 seconds and covered a distance of 120 feet:*
 - c. **Wright Brothers**
9. *The title engineer first came into use during this period:*
 - a. **Middle ages** (Due to the engines of war)
10. *These ancient engineers practiced the earliest known form of surveying, developed effective irrigation systems, and built the tallest structures:*
 - a. **Egyptians**
11. *An Italian astronomer and physicist who made the first practical use of the telescope to study astronomy:*

- d. **Galileo**
- 12. *An English Scientist and mathematician who invented calculus and formulated the law of universal gravitations:*
- c. **Newton**
- 13. *He secured patents for an induction motor and for a new polyphase alternating current:*
- c. **Tesla**
- 14. *He invented the incandescent light bulb and discovered that lamps can be connected in parallel:*
- b. **Edison**
- 15. *Since the invention of this device in 1947, semiconductor devices have in large measure replaced vacuum tubes as amplifying devices for electronic signals:*
- a. **Transistor**
- 16. *Many of the improved engineering devices in the Middle ages including the invention of gunpowder and the development of processes for the making of paper appeared in:*
- d. **China**
- 17. *He invented the movable type mold (Modern printing device) and was credited with the printing of the first book about 1450:*
- a. **Boyle**
- 18. *The first commercially successful river paddle steamship appeared in America by:*
- b. **Robert Fulton's Clermont**
- 19. *Communication by telegraph was invented by:*
- d. **Morse**
- 20. *During the 1750-1900 periods, this famous road builder from Scotland developed a method of road construction by compacting layers of broken stones.:*
- a. **John MacAdam**
- 21. *The first commercially successful river paddle steamship in America was made by:*
- a. **Robert Fulton's Clermont**
- 22. *Three branches of engineering are listed below. Describe each one briefly and provide two examples of a significant specialized area from each branch:*

A. Electrical:

Electrical engineering is the industrial-scale engineering for large buildings, or long distance power, or in electronics.

- Electronics Engineering
- Power Systems

B. Mechanical:

Mechanical Engineering is where you get different physical pieces to move together to perform a function.

- Engine Development
- Robotics (Only on the moving parts, the electrical parts are performed by an electronics engineer).

C. Industrial

Industrial Engineering is mostly focused on factories where they focus on automation

- Factory automation
- Manufacturing

23. *Name at least three of the five oldest and largest professional engineering organizations “Founder societies”: IEEE, ASCE, ?*

24. *Explain briefly the services that are provided by the professional engineering organizations to their members:*

- ASCE: Civil Engineering
- IEEE: Develops standards for electronics
- ?

25. *Specify the result with the correct number of significant digits:*

- a. **568.36**
- b. **581.79**
- c. **1.28**

26. *Round off the following results to the number of significant figures specified using scientific notation:*

- a. **6.6967×10^2**
- b. **8×10^{-2}**
- c. **2.66993×10^2**
- d. **5.15×10^4**

- e. 7.800×10^4
- f. 5.0×10^2
- g. 6.7301×10^5
- h. 1.39×10^0
- i. 3.80×10^2
- j. 8.00001×10^2

27. *In the data set below, each measurement was taken of the same dimension:*

mean = **6.2509**

median = **6.2400**

mode = **6.2400**

std = **0.0416**

28. *Use a 99% confidence interval to determine the validity of the 7.22 measurement which appears to be in error:*

```
>> b = [7.22 7.27 7.36 7.23 7.21 7.25 7.26 7.24 7.28 7.24 7.20]
```

```
>> B = [7.27 7.36 7.23 7.21 7.25 7.26 7.24 7.28 7.24 7.20]
```

```
>> mean(B)+3*std(B)
```

```
ans =
```

```
7.3883
```

```
>> mean(b)
```

```
ans =
```

```
7.2509
```

```
>> mean(B)-3*std(B)
```

```
ans =
```

```
7.1197
```

```
>>
```

7.22 is within range of the data set, does belong within the set.