JeZag's 2016 It's About Time Practice Test

ANSWER KEY

1 time zone	1. How many time zones does China currently have?
1.28 seconds	2. If the distance between the earth and the moon is approximately 384,400 km, how many seconds does it take light from the moon to reach our eyes?
June 30th, 2015	3. What date (month, day, year) is the next leap second?
2.92×10^{15} Hertz	4. The electron of an excited hydrogen atom jumps from an energy level of -1.51eV to ground state at -13.6 eV and releases a photon. What is the frequency (Hz) of this photon?
2.68 seconds	5. Find the period in seconds of a rod pendulum 2.68 meters long. Acceleration due to gravity is 9.81 m/s^2 and the amplitude of oscillation is small.
4430 minutes	6. I can write a practice test in 5.00 days. My cat can write a practice test in 8.00 days. How many minutes would it take us to write a practice test if we worked together?
Ptolemy	7. The equation of time accounts for the difference between standardized time and apparent solar time. Who is the first person to describe the equation of time?
1.45 µseconds	8. I am 1 km away from a light source I am moving at .9c towards the light source and the light source emits light at t=0 seconds. How many seconds does it take me to start seeing light? 1 km and 0.9 c are measured in the rest frame.
March 19, 1918	9. What date (month, day, year) was the Standard Time Act passed in the U.S. Congress?
Quaternary Period	10. In what geologic time period did the modern human first appear?
25 seconds	11. Abby and Bob are attached together by a 12 meter rope and are orbiting each other in outer space at a rate of 9 rotations per hour. If they pulled each other closer so they are separated by 3 meters, how many seconds long is the new period of their orbit?
1970s	12. Around which decade was the first digital LED wrist watch invented?

0.383 seconds

13. If the *k* of a certain reaction is 4.20 sec^{-1}, how long does it take the reactant to reach 20% of initial concentration?

Oct, 27, 2015
12:05 UTC

14. What are the date and the UTC time of the Hunter's Moon this year?

Analemma

15. Taking a picture of the sun at the same time everyday reveals a figure eight path. What is this path known as?

Piezoelectric

16. What property of quartz allows it to vibrate when exposed to an electric current?

43 times

17. How many times a day will military time read three or more of the same number in a row? (ie 01:11)

The Tang Dynasty

18. During which Chinese dynasty was the first escapement mechanism created?

Dial Plate

19. The sundial casts a shadow onto a surface of the sundial to read time. What is the name of this surface?

27 gears

20. The Antikythera mechanism was a clockwork mechanism capable of calculating position of planets, time of eclipses, and more. How many gears does the largest fragment have?

23:54:56

21. I have a clock which displays military time and every day, it gains one second. If I synchronize the clock at the start of this year, 0000 UTC, what time will the clock display at the end of this year, 2400 UTC? Answer should be in the form: (xx:xx:xx)

1656

22. In what year was the first pendulum clock made?

9.68 seconds

23. A circuit consists of a 0.6 F capacitor and a 9 ohm resistor connected in series to a 12 volt battery. In how many seconds will the potential difference across the resistor reach 10 volts?

Boulder, Colorado

24. The NIST-F1 was America's first cesium fountain clock and served as USA's standard of time between 1999 and 2014. Where is this monumental timepiece located?

2.45 GHz	25. At what frequencies do household microwave ovens operate?
1900 days	26. If the distance between Planet X and the sun is on average 3 times larger than that of earth and the sun, approximately how long does a year last on Planet X?
128 seconds	27. The AirInflator900 pumps 1.5 kg of hot air per minute. If the density of hot air is around 0.9486 kg/m^3, how many seconds will it take to fill a 1.5 meter cube with hot air?
Cross-beat escapment	28. What escapement did Jost Bürgi invent?
Complications	29. What describes other functions of a luxury watch other than keeping time?
346.62 days	30. How many days are in one draconic year?
181 Hz	31. What is the beat frequency between a concert A (440 Hz) and middle C (259 Hz)?
6.36 seconds	32. A spring has an original period of oscillation of 9 seconds. If the spring is cut in half, what is the new period in seconds?
22:30:00	33. Seven bells during first watch at sea signals what time? Your answer should be in the form: (xx:xx:xx)
188 m/s	34. A flight from LAX leaves on Thursday, 10 AM, and arrives in Tokyo, Japan on Friday, 3 PM. What is the average speed (m/s) over the 8810 km voyage?
Patek Philippe	35. The Henry Graves Supercompication timepiece was sold last year for $24.4 million, making it the most expensive watch in history. Who constructed this modern masterpiece?
730000 decimal minutes	36. How many decimal minutes fit into a biennium? Assume that the biennium in this problem spans over the least amount of leap years realistically possible.