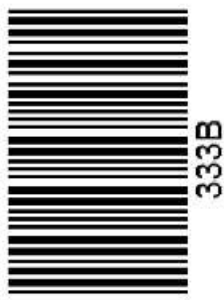


کد کنترل

333

B

برای مشاهده منابع زبان عمومی کنکور ارشد کلیک کنید



صبح پنج‌شنبه

۱۳۹۹/۵/۲



جمهوری اسلامی ایران
وزارت علوم، تحقیقات و فناوری
سازمان سنجش آموزش کشور

«اگر دانشگاه اصلاح شود مملکت اصلاح می‌شود.»
امام خمینی (ره)

آزمون ورودی دوره‌های کارشناسی ارشد ناپیوسته داخل - سال ۱۳۹۹

مجموعه مهندسی برق - کد (۱۲۵۱)

مدت پاسخ‌گویی: ۲۷۰ دقیقه

تعداد سؤال: ۱۳۸

عنوان مواد امتحانی، تعداد و شماره سؤالات

ردیف	مواد امتحانی	تعداد سؤال	از شماره	تا شماره
۱	زبان عمومی و تخصصی (انگلیسی)	۳۰	۱	۳۰
۲	ریاضیات (معادلات دیفرانسیل، ریاضیات مهندسی، آمار و احتمال)	۱۵	۳۱	۴۵
۳	مدارهای الکتریکی (۲و۱)	۱۵	۴۶	۶۰
۴	الکترونیک (۲و۱) و سیستم‌های دیجیتال ۱	۱۵	۶۱	۷۵
۵	ماشین‌های الکتریکی (۲و۱) و تحلیل سیستم‌های انرژی الکتریکی ۱	۱۵	۷۶	۹۰
۶	سیستم‌های کنترل خطی	۱۲	۹۱	۱۰۲
۷	سیگنال‌ها و سیستم‌ها	۱۲	۱۰۳	۱۱۴
۸	الکترومغناطیس *	۱۲	۱۱۵	۱۲۶
۹	مقدمه‌ای بر مهندسی پزشکی *	۱۲	۱۲۷	۱۳۸

* برای داوطلبان رشته مهندسی پزشکی، انتخاب یکی از این دو درس اجباری است.

این آزمون نمره منفی دارد.

استفاده از ماشین حساب مجاز نیست.

حق چاپ، تکثیر و انتشار سؤالات به هر روش (الکترونیکی و...) پس از برگزاری آزمون، برای تمامی اشخاص حقیقی و حقوقی تنها با مجوز این سازمان مجاز می‌باشد و با متخلفین برابر مقررات رفتار می‌شود.

۱۳۹۹

* داوطلب گرامی، عدم درج مشخصات و امضا در مندرجات جدول ذیل، به منزله عدم حضور شما در جلسه آزمون است.

اینجانب با شماره داوطلبی با آگاهی کامل، یکسان بودن شماره صندلی خود را با شماره داوطلبی مندرج در بالای کارت ورود به جلسه، بالای پاسخ‌نامه و دفترچه سؤالات، نوع و کد کنترل درج شده بر روی دفترچه سؤالات و پائین پاسخ‌نامه‌ام را تأیید می‌نمایم.

امضا:

زبان عمومی و تخصصی (انگلیسی):

PART A: Vocabulary

Directions: Choose the word or the phrase (1), (2), (3), or (4) that best completes the blank. Then mark the correct choice on your answer sheet.

- 1- I omitted all the extraneous details while explaining the ----- of the matter to him.
1) breach 2) distinction 3) qualm 4) gist
- 2- While his brother writes in an unclear and clumsy way, Sam himself is known for his ----- style of writing.
1) lucid 2) verbose 3) dull 4) feasible
- 3- Poultry farms place the eggs into incubators to ----- the growth of the embryo into chicken.
1) conquer 2) hasten 3) outline 4) elude
- 4- With as many as three witnesses giving evidence against her, the ----- of her claim that she was innocent was in serious doubt.
1) demonstration 2) paradigm 3) veracity 4) empiricism
- 5- I did not like her way of teaching because her lecture had too many digressions; she kept on wandering to various subjects, most of them not ----- to the central idea of her topic.
1) vulnerable 2) peripheral 3) pertinent 4) loyal
- 6- With the advent of electric bulbs and emergency lights, the use of gas lamps became -----.
1) imprecise 2) repetitive 3) idealistic 4) obsolete
- 7- The employee did not believe the implausible story that Janet ----- to justify her absence from work.
1) concocted 2) scrutinized 3) manipulated 4) reassured
- 8- The doctor has advised him to ----- adhere to the prescribed regimen; otherwise, there is a danger of relapse of the illness.
1) sequentially 2) strictly 3) ineptly 4) selectively
- 9- The ----- in her speech can put off almost anyone; she urgently needs to tone down the harsh words she uses.
1) explicitness 2) enigma 3) shortsightedness 4) acerbity
- 10- He is so wasteful; he has ----- all the money that he had borrowed from me, and is now back again asking for more.
1) allocated 2) neglected 3) depleted 4) accumulated

PART B: Cloze Passage

Directions: Read the following passage and decide which choice (1), (2), (3), or (4) best fits each space. Then mark the correct choice on your answer sheet.

Good learners work hard. A few things may come easily to learners, but most knowledge requires effort (11) ----- to put in the time. They talk with others, read more, study more and carry around when they don't understand, (12) ----- about it before they go to sleep, at the gym, on the bus. Good learners are persistent. When they fail, they carry on, (13) ----- that they will figure it out eventually. (14) -----, they learn from their mistakes. Good learners recognize (15) ----- always fun. But that does not change how much they love it.

- | | | |
|-----|-----------------------------------|----------------------------------|
| 11- | 1) which is good learners willing | 2) and good learners are willing |
| | 3) that good learners willing are | 4) willing are good learners |
| 12- | 1) thinking | 2) to think |
| | 3) they think | 4) by thinking |
| 13- | 1) are confident | 2) who are confident |
| | 3) they are confident | 4) confident |
| 14- | 1) Although | 2) In the meantime |
| | 3) A case in point | 4) Whereas |
| 15- | 1) learning not be | 2) that learning is not |
| | 3) to learn not to be | 4) learning it is not |

PART C: Reading Comprehension

Directions: Read the following three passages and answer the questions by choosing the best choice (1), (2), (3), or (4). Then mark the correct choice on your answer sheet.

PASSAGE 1:

The next few decades will see great changes in the way energy is supplied and used. In some major oil producing nations, 'peak oil' has already been reached, and there are increasing fears of global warming. Consequently, many countries are focusing on the switch to a low carbon economy. This transition will lead to major changes in the supply and use of electricity. Firstly, there will be an increase in overall demand, as consumers switch from oil and gas to electricity to power their homes and vehicles. Secondly, there will be an increase in power generation, not only in terms of how much is generated, but also how it is generated, as there is growing electricity generation from renewable sources. To meet these challenges, countries are investing in Smart Grid technology. This system aims to provide the electricity industry with a better understanding of power generation and demand, and to use this information to create a more efficient power network.

Smart Grid technology basically involves the application of a computer system to the electricity network. The computer system can be used to collect information about supply and demand and improve engineers' ability to manage the system. With better information about electricity demand, the network will be able to increase the amount of electricity delivered per unit generated, leading to potential reductions in fuel needs.

and carbon emissions. Moreover, the computer system will assist in reducing operational and maintenance costs.

Smart Grid technology offers benefits to the consumer too. They will be able to collect real-time information on their energy use for each appliance. Varying tariffs throughout the day will give customers the incentive to use appliances at times when supply greatly exceeds demand, leading to great reductions in bills. For example, they may use their washing machines at night. Smart meters can also be connected to the internet or telephone system, allowing customers to switch appliances on or off remotely. Furthermore, if houses are fitted with the apparatus to generate their own power, appliances can be set to run directly from the on-site power source, and any excess can be sold to the grid.

- 16- What would be the best title for the passage?
- 1) Renewable Energy Sources
 - 2) Smart Grid Technology
 - 3) Fears of Global Warming
 - 4) A Challenge to Oil Producing Nations
- 17- According to paragraph 1, one reason for switching to a low carbon economy is that -----.
- 1) oil is getting more and more expensive
 - 2) electricity can be produced all over the world
 - 3) some countries may produce less oil than before
 - 4) the oil producing nations do not seem to care about global warming
- 18- All of the following are mentioned in paragraph 1 as future changes in the supply and use of electricity EXCEPT -----.
- 1) more electricity will be generated
 - 2) cars will use electricity instead of oil and gas
 - 3) more attention will be given to power generation from renewable sources
 - 4) consumers will attempt to generate the electricity required for their homes and vehicles themselves
- 19- According to paragraph 2, Smart Grid technology can be beneficial in all of the following ways EXCEPT -----.
- 1) reducing costs
 - 2) accelerating power generation
 - 3) enhancing system management
 - 4) decreasing carbon emissions
- 20- According to paragraph 3, people are more likely to use appliances at times when demand is low if -----.
- 1) they know about its lower tariffs
 - 2) they have a washing machine at home
 - 3) they can easily switch appliances on or off
 - 4) Smart Grid technology gives them information about other consumers

PASSAGE 2:

Although static electricity can be dangerous and is often nothing but a nuisance, it does have its uses. Spark plugs were mentioned earlier, but they are not the only application of static electricity that is beneficial. Copier machines would not work without static electricity.

To produce a copy, most modern copier machines make a "charged image" of the original document. The process starts with a uniformly charged belt or drum covered

with a photoconductor, which is a material sensitive to light. The machine exposes the original document to a bright source of light; the white parts of the document reflect a lot of this light, and the dark parts reflect only a little. This reflected light is focused on the photoconductor, and in places where the light is strong, the charge on the photoconductor vanishes, because the light makes the material conduct and carry away the charges. This does not affect the remaining areas, which correspond to the dark areas of the original, so they continue to be charged. The photoconductor sheet, now charged only in the places corresponding to the dark areas of the original document, contains the charged image.

Next the machine applies ink, or toner, to the charged image to make it become visible. The toner has a charge opposite that of the charged image. Electrostatic forces now come into play, for when the toner meets the charged image, it sticks to the charged areas (which correspond to the dark areas of the original), because opposite charges attract. The system removes any excess charge and transfers the toner to a sheet of paper. After an application of heat to fuse the toner onto the paper, out comes the duplicate.

- 21- According to paragraph 1, both spark plugs and copier machines -----.
- 1) have various applications
 - 2) require static electricity to work
 - 3) were discussed in the previous sections
 - 4) are examples that illustrate how static electricity is nothing but a nuisance
- 22- Which of the following is NOT true of modern copier machines?
- 1) They produce charged images.
 - 2) They expose the document to bright light.
 - 3) They shed only a little light on the dark parts of the original document.
 - 4) They distinguish the light parts of a document from its dark parts through their reflectivity.
- 23- The word "they" in paragraph 2 refers to -----.
- 1) the sheets
 - 2) the charges
 - 3) the remaining areas
 - 4) the dark areas of the original
- 24- The main function of paragraph 2 and 3 is to -----.
- 1) describe a process
 - 2) prevent a misunderstanding
 - 3) explain how a photoconductor works
 - 4) elaborate on the applications of static electricity
- 25- According to paragraph 3, why does ink stick to certain areas of the image?
- 1) The applied heat leads the ink.
 - 2) The other areas attract the excess charge.
 - 3) Electrostatic forces are attracted to the darker areas.
 - 4) Ink and those areas are oppositely charged.

PASSAGE 3:

Fiberscopes are one of the most important outcomes of the science of fiber optics. Fibers made of glass and transparent acrylic plastic are capable of conveying light energy, and when thousands of these fibers are combined in what is called a

fiberscope, they can try transmit images. The most common fiberscopes contain about 750,000 fibers, each 0.001 centimeter, or 10 microns, in diameter. For certain uses, the diameter of the fiber may be as small as 5 microns.

Fiberscopes have a wide range of applications. In the medical field, physicians use fiberscopes to examine internal organs and as an aid in delicate surgeries. Miniature probes have also been developed to view muscle fiber, skin tissue, and blood cells. Fiberscopes have also found varied uses in industry, particularly to inspect or control operations in inaccessible areas. Bundles of fiberscopes fused together in a solid plate, called a faceplate, are being used in the manufacture of television picture tubes and other cathode-ray tube devices.

The most far-reaching applications of fiber-optic technology are in communications. Optical fibers carry voice messages for telephone service. The sound of the voice is electronically broken down into thousands of pulses per second, which causes a transmitting laser to send coordinated pulses of light through the optical fibers. At the receiving end, the light pulses are converted to electrical signals and the voice message is reconstructed. Light-wave communication systems can handle an immensely greater number of telephone calls and television programs than the current system, and they will form the basis of the "electronic superhighway" expected to crisscross the nation in the near future of the information age.

- 26- **Fibers can transmit images if -----.**
 1) the images are transparent
 2) they can convey light energy
 3) they are mixed with acrylic plastic
 4) many of them are combined in a fiberscope
- 27- **It can be understood from the passage that most fibers are -----.**
 1) larger than 5 microns in diameter
 2) used to transmit written messages
 3) smaller than 0.001 centimeter
 4) used in the medical field
- 28- **All of the following are mentioned as what fiberscopes can do in the medical field EXCEPT -----.**
 1) helping surgeries
 2) checking skin tissue
 3) viewing brain activity
 4) examining internal organs
- 29- **Optical fibers carry voice messages by -----.**
 1) using cathode-ray tube devices
 2) converting electrical signals to light pulses
 3) using a solid plate called a faceplate
 4) allowing an immense number of coordinated electrical signals to go through them
- 30- **The word "handle" in the third paragraph is closest in meaning to -----.**
 1) manage
 2) overcome
 3) transfer
 4) include

