PROCESO SELECTIVO PARA EL INGRESO EN EL CUERPO DE OBSERVADORES DE METEOROLOGÍA DEL ESTADO POR EL SISTEMA GENERAL DE ACCESO LIBRE

Resolución de 2 de julio de 2021 de la Subsecretaría (B.O.E. de 13 de julio)

NORMAS GENERALES DEL EXAMEN

El tiempo de ejecución del ejercicio por parte de los aspirantes es de DOS horas.

Durante la realización del ejercicio debe mantener en todo momento la mascarilla cubriendo nariz y boca. Únicamente podrá retirarse momentáneamente para beber.

Encima de la mesa solo debe estar el DNI u otros documentos identificativos, en lugar visible, el cuestionario, la hoja de respuestas, las hojas de borrador que facilita el Tribunal y una botella de agua siempre y cuando esta sea transparente y no presente etiqueta. El resto de pertenencias deben permanecer en el suelo en el lugar que indique el Tribunal.

Se deberá contestar el cuestionario con bolígrafo azul o negro.

No está permitida la consulta de documentación de cualquier tipo ni la utilización de dispositivos electrónicos (teléfonos móviles, tabletas, relojes inteligentes, etc.), salvo calculadora no programable. Los dispositivos electrónicos de uso particular deberán permanecer apagados comprobando que no tienen alarmas activas.

No está permitido el uso de dispositivos auditivos de cualquier tipo (tapones, etc.), exceptuando aquellos aspirantes que presenten un justificante médico.

Si algún aspirante tuviese que abandonar el aula por causa de urgente necesidad, lo hará acompañado de al menos un miembro del Tribunal o colaborador. Estas salidas no darán derecho a prórrogas en el tiempo máximo para la resolución del ejercicio.

La vulneración de cualquiera de estas normas conllevará la expulsión del aspirante del ejercicio.

El ejercicio consiste en un cuestionario de 40 preguntas tipo test con 4 opciones de respuesta donde solo una de ellas es la correcta. Todas las preguntas tendrán el mismo valor. Las respuestas incorrectas serán penalizadas con ¼ del valor de cada contestación acertada. Las preguntas no contestadas no penalizan.

La calificación máxima de este ejercicio será de 20 puntos. Los puntos por encima de 10 que obtuviera el aspirante se sumarán a la puntuación del primer y el segundo ejercicio.

Una vez comenzado el ejercicio no será posible abandonar el aula de examen durante los primeros 30 minutos ni cuando resten 15 minutos para su conclusión. En el caso de que el aspirante abandone la prueba antes de su finalización, tras entregar el ejercicio completo y las hojas de borrador, únicamente podrá llevarse la copia de sus respuestas.

Finalizada la prueba, el Tribunal recogerá la hoja de respuestas. En este momento, el aspirante podrá llevarse la copia de sus respuestas y el cuestionario de examen. De manera voluntaria los aspirantes podrán quedarse al descabezado y ensobrado de copias y cabeceras.

Durante la realización del ejercicio el Tribunal no hará ninguna aclaración respecto a las dudas que pudieran surgir relativas al contenido del cuestionario.

Tras la finalización del ejercicio, el Tribunal procederá, en el plazo máximo de 3 días hábiles a la publicación de la plantilla provisional de corrección del mismo.

Cumplimenten cuando se les indique la cabecera de la hoja de examen. Aparecen cuatro campos: NOMBRE Y APELLIDOS (utilicen letras mayúsculas), DNI, CATEGORÍA, y FIRMA. En el campo CATEGORÍA deben poner “OBSERVADORES LIBRE” u “OBSERVADORES LIBRE C6” para los candidatos que se presenten por el cupo de reserva C6. Al firmar tengan cuidado en que la firma no sobrepase el espacio dedicado para ello.

Tengan en cuenta que el EJERCICIO se responde en la HOJA DE RESPUESTAS y no en el cuestionario. Todas las respuestas que NO estén marcadas en la hoja de respuestas, NO serán tenidas en cuenta.

Durante los siguientes minutos, lean las instrucciones al dorso de la HOJA DE EXAMEN. A la finalización de este tercer ejercicio, se procederá al **acto público de separación de cabeceras** de las “Hojas de Examen”

Sobre la forma de contestar en la “hoja de examen”, lea muy atentamente las instrucciones que figuran al dorso de la misma.

READING COMPREHENSION

Part I. Read the following newspaper headlines and indicate their meaning.

Southern Italy braced for rare Mediterranean hurricane

1.

a) Southeast Italy was devastated after being hit by a hurricane coming from the Mediterranean
b) The South area of Italy is prepared for the effects of an unusual hurricane coming from the Mediterranean
c) The Italian government breathes a sigh of relieve after a hurricane went past the Southwest
d) The Mediterranean Sea has generated a series of hurricanes affecting Southern Italy

Flash floods cause havoc across Europe

2.

a) Overnight outpouring has caused devastation in several areas in Europe
b) A sudden avalanche has swept several areas in Europe
c) The warning system prevented the heavy rain front from causing chaos in Europe
d) The scarce rainfall in Europe is expected to lead to severe droughts

At least five dead as tornado wrecks buildings in Czech Republic

3.

a) A tornado demolished up to five homes in the Czech Republic
b) 5 people died as a result of the falling branches over homes when a tornado hit the Czech Republic
c) A violent windstorm tuned buildings into rubble causing the death of at least 5 people in the Czech Republic
d) Five people have been killed while assisting in the rescue efforts after the twister hit the Czech Republic.

The impact of climate change awareness on behavioural changes

4.

a) Climate change is improving people's values
b) Climate change is altering people's attitude and behaviour towards their consumption
c) As people feel the impact of climate change, their habits are being modified.
d) Being aware of how climate change is affecting our environment it is leading to a policy change

UN chief calls for extreme weather warning systems for everyone on Earth

5.

a) The UN secretary general suggested the planet should be covered by an early detection system against extreme weather
b) The UN secretary general rejects the idea that the planet should be covered by a prevention system against extreme weather
c) The UN secretary general promised the planet will be covered by an early warning system against extreme weather
d) The UN secretary general said the planet should share social protection systems against extreme weather

Part II. Read the following text and answer the questions.

Radio Frequency Interference: An NWP Perspective On The RFI 2022 Workshop

In February 2022, 162 scientists from diverse communities (radio astronomy, meteorology, Earth remote sensing and spectrum management) came together at the RFI2022 workshop to discuss a growing issue of concern to all: Radio Frequency Interference (RFI). Radio frequency refers to that part of the electromagnetic spectrum between 30 Hz and 300 GHz and is referred to as radio spectrum (this is broader than the frequencies we think of as 'radio' in our day-to-day lives).

There are many uses of the radio spectrum to support critical services: for example, your mobile phone, military applications and, of course, weather forecasting. It is a challenge for governments to balance competing demands for radio spectrum. We all want faster and more reliable data on our mobile phones, but we also need the weather forecast to be accurate.

Spectrum is a finite, shared resource and decisions taken on allocations can have far reaching consequences, which can sometimes be serious for science applications. In meteorology, for example, observations of thermal infrared and microwave radiation provide a large amount of the information used by weather forecast and climate models. Other science applications, such as Earth remote sensing and radio astronomy, share similar challenges and concerns. All these science domains need clean spectrum because they are measuring very weak natural signals. By clean we mean free from any detectable man-made signals.

The RFI2022 workshop follows five previous RFI workshops, the first in 2001. They offer the opportunity for science users of spectrum to come together, share their experiences, talk about monitoring and possible mitigation strategies, as well as how best to influence the regulatory process.

Even the SETI (Search for Extra-Terrestrial Intelligence) community are involved because, as was reported at the workshop, most signals thought to be from "ET" end up being shown to be RFI from our own emissions!

There are many new users of spectrum. However, 5G needs a lot of spectrum so there is currently concern over its potential impact.

Yan Soldo showed the impact of 5G RFI in C-band (a band that will be used for example by the Copernicus Imaging Microwave Radiometer (CIMR)). It is remarkable to see how the 5G impact, though dominant over land, spreads over 1000 km out to sea**.** This is not a land-only problem.

RFI is already being reported at lower frequencies (below 20 GHz). Low frequencies are mostly used to monitor the Earth's surface but also precipitation. The concern is this could now extend to higher frequencies used to observe atmospheric temperature and humidity.

So far, no cases of RFI at higher frequency bands (e.g., 50-60 GHz, 183 GHz) have been seen, but as recent trends have been towards more interest in these bands for new applications, it is being watched carefully.

The workshop was shown many efforts to monitor RFI across the different application areas. I called on Science Working Groups of the Coordination Group for Meteorological Satellites to coordinate international efforts to compare such monitoring, to further separate anomalies from real signal. However, there will always be the problem of what some speakers referred to as “insidious RFI”: RFI that is too small to detect with such methods, but large enough to be comparable to the normal size of corrections data assimilation makes to the model. Insidious RFI is easily misinterpreted as real signal, and there are no options for mitigation or even detection, making it difficult to report to regulatory authorities.

Numerical weather prediction itself can be a powerful tool to identify RFI, through techniques used to spot problems in satellite instruments.

The workshop highlighted the success of using machine learning (ML), especially in radio astronomy, for anomaly detection, and ML may be able to further enhance RFI screening. Whilst this and NWP-based monitoring may be a good approach, neither solves the fundamental problem that the most dangerous RFI is RFI that looks like real meteorological signal in the data. Therefore, the policy to manage the situation through international regulation remains the right one.

From ECMWF blog

6. **Attendees to RFI2022 aimed at …**

a) Determining what is understood as radio spectrum

b) Setting regulatory frameworks for radio spectrum usage

c) Debating the recent problems arisen by radio spectrum usage.

d) Complaining about governmental restrictions on scientists’ use of radio spectrum

7. **What is clean spectrum essential for?**

a) Having good mobile signal

b) For detecting man-made signals

c) For thermal infrared and microwave radiation

d) For measuring very weak natural signals

8. **Copernicus Imaging Microwave Radiometer (CIMR)…**

a) uses 5G RFI

b) interferes in 5G RFI

c) is affected by 5G

d) does not affect C-band out to sea

9. **Which statement is false?**

a) Low RFI are only used to monitor the Earth's surface

b) RFI at around 100 GHz have not been seen yet.

c) Experts are on the watchout to detect high frequency bands

d) Temperature and humidity are observed by means of RFI

10. **What is meant by insidious RFI?**

a) The ones that are unmistakable

b) Those that can't be internationally monitored

c) Those that lack anomalies

d) Those that may be mistaken

LANGUAGE IN USE

Part III: Vocabulary. Complete each sentence with the correct form:

11. MET Office ____ of flying debris and power cuts while rail services are cancelled as nation prepares for first of two storms

a) advise b) advices c) warns d) calls

12. Storm Dudley is bringing 90mph____

a) gales b) rain c) snow d) sleet

13. Local authorities have alerted people to the dangerous high winds and potential ____to transport.

a) disrespect b) disruption c) disrobing d) distortion

14. Drivers are being urged to think ____about their journeys along coastal roads because of the large waves

a) careful b) carely c) cared d) carefully

15. it is said that, where snow does fall, the high wind are likely to create ____conditions.

a) drizzle b) steam c) blizzard d) mist

16. We are encouraging drivers to check the latest weather and travel conditions before ____ on journeys and consider if it can be delayed until conditions improve.

a) setting off b) setting up c) setting down d) setting by

17. Saharan dust comes ahead of what is expected to be the hottest day of the year so far, with temperatures set to reach ____18ºC in some areas.

a) into b) onto c) up to d) across

18. My feet were ____ because I trod in a puddle.

a) itchy b) soaked c) dusted d) dry

19. Do you think the wind has ____ enough for us to go sailing without any danger?

a) torn down b) died down

c) faced up to d) put out

20. Josh isn't feeling very well today, he is feeling ____the weather.

a) through b) across c) over d) under

Part IV: Grammar. Complete each sentence with the correct form:

21. We will take you back to your hotel at 6.00 p.m. and you will have an hour and a half to relax before ____dinner

a) a b) an c) the d) –

22. I didn't know that Katherine was a colleague of ____

a) you b) your c) yours d) yourself

23. Our two children walk to school together, so they can look after ____.

a) themselves b) one another

c) another one d) theirselves.

24. 'Do you prefer summer or winter weather?' 'Frankly, I don't like ____ of them!'

a) neither b) both c) either d) nor

25.According to the IPCC, the occurrence of extreme weather events is unprecedented in the observed record and ____ with increasing global warming.

a) is expect to increase b) is expected increasing

c) is expected to increase d) is expected increase

26. The frequency and intensity of heavy rainfall events ____ since the 1950s and these are projected to intensify by about 7% for each 1º of global warming.

a) increases b) increased

c) has increased d) had increased

27. The explorers continued their expedition ____ the weather became so bad that were forced to give up.

a) while b) after c) until d) since

28. Until the beginning of this century, farmers could not do much more to encourage good weather, ____, that all appears about to change.

a) although b) however c) and d) despite

29. Some scientists, however, believe that even if we stopped releasing carbon dioxide and other gases into the atmosphere tomorrow, we ____ to wait several hundred years to notice the results.

a) will have b) would have c) had d) must have

30. For a long time, scientists have dreamed of creating artificial clouds to bring rain to areas hit by drought, but it is ____ harder to do than they expected.

a) much b) so c) as d) further

Part V: USE OF ENGLISH. Fill in the blanks with the appropriate word/s.

HISTORY OF WEATHER FORECASTING

The Greek philosophers had much to say about meteorology, and many who subsequently engaged in weather forecasting no doubt made use of their ideas. Unfortunately, they probably made many bad forecasts, because Aristotle, who was the most influential, did not believe that wind is air in motion. He did believe, however, that west winds are cold because they blow from the sunset.

The scientific study of meteorology did not develop until measuring instruments became available. ____ (31) beginning is commonly associated with the invention of the mercury barometer by Evangelista Torricelli, an Italian physicist-mathematician, in the mid-17th century and the closely linked development of a reliable thermometer.

A succession of notable achievements by chemists and physicists of the 17th and 18th centuries contributed significantly ____ (32) meteorological research. During the 19th century, all of those brilliant ideas began to produce results in terms of useful weather forecasts.

An observant person ____ (33) has learned nature's signs can interpret the appearance of the sky, the wind, and other local effects and "foretell the weather". A scientist can use instruments ____ (34) one location to do so even more effectively.

The modern approach to weather forecasting, ____ (35), can only be realized when many such observations are exchanged quickly by experts at various weather stations and entered on a synoptic weather map to depict the patterns of pressure, wind, temperature, clouds and precipitation at a specific time. Such a rapid exchange of weather data became ____ (36) with the development of the electric telegraph in 1837 by Samuel FB Morse.

Synoptic weather maps resolved one of the great controversies of meteorology – namely, the rotary storm dispute. By the early decades of the 19th century, it was known that storms were associated with low barometric readings, but the relation of the winds to low-pressure systems, called cyclones, remained unrecognized. William Redfield, a ____ (37) meteorologist, noticed the pattern of fallen trees after a New England hurricane and suggested in 1831 that the wind flow was a rotary counter clockwise circulation around the centre of lowest pressure.

The American meteorologist James P. Espy subsequently proposed in his Philosophy of Storms, 1841, that air would flow toward the regions of lowest pressure and then would be forced upward, causing clouds and precipitation. _____ (38) Redfield and Espy proved to be right. The air does spin around the cyclone, as Redfield believed, while the layers close to the ground flow inward and upward as well. The net result is a rotational wind circulation that is slightly modified at Earth's surface to produce inflow toward the storm centre, just as Espy had proposed. Further, the inflow is associated with clouds and precipitation in regions of low pressure, though that is not the only cause of clouds there.

In Europe the writings of Heinrich Dove, a Polish scientist who directed the Prussian Meteorological Institute, greatly influenced views concerning with behaviour in storms. ____ (39) the Americans, Dove did not focus on the pattern of the winds around the storm but rather on how the wind should change at one place as a storm passed. It was many years before his followers understood the complexity of the possible changes.

Routine production of synoptic weather maps became possible after networks of stations where organized to take measurements and report them to some type of central observatory. As early as 1814, U.S. Army Medical Corps personnel were ordered to record weather data at their posts; this activity was subsequently expanded and made more systematic. Actual weather-station networks ____ (40) in the United States by New York University, the Franklin Institute, and the Smithsonian Institution during the early decades of the 19th century.

The original purpose of the service was to provide storm warnings for the Atlantic and Gulf coasts and for the Great Lakes. Within the next few decades, there were national meteorological services in Europe, Asia and South America. The importance of international cooperation in weather prognostication was recognized by the directors of such national services. By 1880, they had formed the International Meteorological Organization.

31. a) its b) their c) it’s d) they’re

32. a) at b) for c) to d) over

33. a) whom b) whose c) which d) who

34. a) at b) into c) to d) over

35. a) so that b) because of c)as long as d) however

36. a) capable b) possible c) unlike d) feasibly

37. a) self-want b) self-learnt c) self-taught d) self-levied

38. a) one b) all c) both d) every

39. a) like b) alike c) unlike d) likely

40. a) were established b) has established c) will have been established
d) established