Observational Round: Planetarium

A1-1

English (Official)

Simulated Sky (75 points) - 17 questions in 45 minutes.

Please read the general instructions before you start this problem.

On the projection screen in front of you, a series of images will be projected. Look at the image and answer the following questions:

Image 1 (2 minutes).

1.1 (6.0 pt)
Identify the drawn lines on the image.

Line Number:	1	2	3
Celestial Equator			
Ecliptic			
Local Meridian			
Local Vertical			
Zero RA			
Galactic Equator			

Image 2 (2 minutes).

1.2 (3.0 pt)
This image was taken from the town of Fada in Chad. What is the latitude of this place? Select only one choice:

A. 10°

B. 17°

C. 22°

D. 33°

Image 3 (3 minutes).

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1.3 (4.0 pt)
Two of the following stars are transiting the meridian in the image. Tick the boxes to those stars.

Arcturus	Mizar	Spica	Regulus

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No Image for questions 4, 5 and 6 (8 minutes)

1.4 $(2.0\ \mathrm{pt})$
If the age of the Moon is 27.5 days, in which direction can we observe it and at what time?. Select only one choice.

A. Before sunrise to the east.

B. After sunset to the west.

C. Close to zenith at sunrise.

D. At 9 am rising in the East.

1.5 $(5.0\ \mathrm{pt})$
Which of the Right Ascensions (RA) listed below will approximately coincide with the local meridian at Pune, India $(74°E)$on April 10 at $19:15$ local time?
A. 6 h

B. 7 h

C. 8 h

D. 9 h

E. 10 h

1.6 $(4.0\ \mathrm{pt})$
At what time during this night (April 10) would we find the Regulus $[\alpha\ Leo\ (RA\ 10h\ 08m\ 22.3s,\ Dec = +11°58'02")]$ at its maximum altitude as seen from Pune, India? Select only one choice.

A. 18:00h

B. 19:00h

C. 20:00h

D. 21:00h

E. 22:00h

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Image 4 for questions 7, 8, 9 and 10

The projected sky now corresponds to -30 **of latitude** (South) with -74 **longitude** (West).

Image 4 (2 minutes).

1.7 $(3.0\ \mathrm{pt})$
Select the constellations pack that crosses the celestial equator on the image.

A. Ori, Tau, Cet, Eri, Psc, Aqr, Aql, Ser

B. Mic, Tau, Per, Cae, Mon, Aql, And, Ser

C. Gru, Tau, Cha, Ara, Aqr, Aql, And, Aps

D. For, Tri, Cet, Psc, Sct, Aql, And, Ser

Image 4 (2 minutes).

1.8 $(6.0\ \mathrm{pt})$
Choose the name of stars indicated by the arrows (tick in the correct cell).

Star Number	1	2	3
Achernar			
Alnair			
Altair			
Alnath			
Ankaa			
Canopus			

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Image 4 (3 minutes).

1.9 (6.0 pt)
Are the following Messier objects presented in the projected sky?. Select (X) YES or NO depending on the case.

Object	YES	NO
M15 (Peg)		
M16 (Aql)		
M27 (Vul)		
M6 (Sco)		
M15 (Cas)		
M27 (CMi)		

Image 4 (3 minutes).

Choose the name of the selected stars (tick in the correct cell). If the same object is listed more than once, choose only the option with the correct constellation:

1.10 (3.0 pt)

Star Number:	1	2	3
Miaplacidus (Car)			
Miaplacidus (Lac)			
Sham (Sge)			
Sham (For)			
The Persian (Gru)			
The Persian (Ind)			

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Image 5 for questions 11 and 12 (4 minutes).

1.11 (4.0 pt)
From the list below select the option that contain the constellations that are along the line of the ecilptic:

A. Psc, Cap, Sgr, Oph

B. Lib, Sco, Oph, Sgr

C. Cap, Sge, Lib, Vir

D. Sgr, Oph, Sco, Vir

E. CrA, Sco, Oph, Leo

1.12 (3.0 pt)
Which constellation or part of contellation is encircled in the image?

A. Sagittarius (Sgr)

B. Corvus (Crv)

C. Telescopium (Tel)

D. Corona Australis (CrA)

Image 6 (2 minutes).

1.13 (3.0 pt)
You are making an observation through a telescope pointed towards the centre of the galaxy. You find an interesting object as shown in the image 6. What is this object?

A. M42 - Orion Nebula

B. M31 - Andromeda Galaxy

C. NGC 2024 - Flame Nebula

D. M8 - Lagoon Nebula

E. M20 - Trifid Nebula

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Image 7 (2 minutes).

1.14 (5.0 pt)
In the Messier Astronomical Catalogue there's a mysterious object: a galaxy. This object in the image cannot be easily identified. Some astronomers had said that it was a duplicate of another Messier Object, but here We have it as an original and awesome galaxy. Wich object is this?

A. M31 - Andromeda Galaxy

B. M33 - Triangulum Galaxy

C. M51 - Whirlpool Galaxy

D. M101 - Pinwheel Galaxy

E. M102 - Spindle Galaxy

Image 8 (2 minutes).

1.15 (2.0 pt)
Estimate the magnitude of Shaula in the constellation Scorpio.

A. 1

B. 1.5

C. 2

D. 2.5

C. 3

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Image 9 (4 minutes).

1.16 (8.0 pt)
Several stars have been indicated in image 9. Tick the stars indicated in the table below.

Star Number:	1	2	3	4
Acubens				
Adhara				
Aludra				
Alzirr				
Arneb				
Gomeisa				
α Mon				
Mebsuta				
Mirzam				
Wasat				

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Image 10 (4 minutes).

1.17 (8.0 pt)
A Messier object has been indicated in image 10. Tick the correct cell below to indicate what it is.

Object Number:	1	2	3	4
M 41				
M 42				
M 46				
M 45				
M 48				
M 50				
M 64				
M 93				

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