

Quiz-2: Seismic Data Processing and Interpretation (GPC 517); Monsoon Semester (2020-21)

Total points 14/30

Answer all questions; No negative marks

Maximum Marks: 30

Time: 11:00 am to 11:30 am

3rd Sem. M.Sc.Tech. & 7th Sem. Integrated M.Tech.

The respondent's email address (**deepak.19mc0025@agp.iitism.ac.in**) was recorded on submission of this form.

✓ CMP stack sections provide a distorted view of the structure other than flat reflectors due to the following reason/reasons, * 1/1

- Dip of reflector segments are decreased and spatial extents are increased
- Buried foci become bow ties for syncline
- Crossing reflections may be produced on the limbs for anticline
- All mentioned above



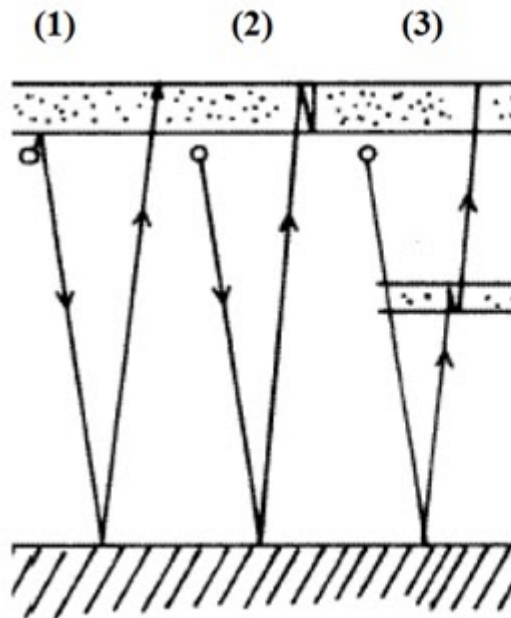
✗ How migration velocity relates to true velocity? Write only the expression. * 0/1

va = v/ sin(dip)



✓ Identify the 3 events from the following diagram. *

3/3



1- GHOST, 2- NEAR SURFACE MULTIPLE, 3- PEG LEG

✗

✗ Which migration algorithm has maximum relative speed? *

0/1

- Stolt @ W= 0.5
- Stolt @ W=1
- Kirchhoff
- FD

✗

Correct answer

- Stolt @ W= 0.5



✘ When Generalized Stolt Migration is possible? *

0/1

- W = 0.7
- W = 0.6
- W = 0.8
- All mentioned above

✘

Correct answer

- All mentioned above

✔ Which imaging technique will produce a quick result based on the following option? *

1/1

- Pre-stack partial Migration
- Depth Migration before stack
- Time Migration before stack
- Time migration after stack

✔

✔ In the reverse time depth migration it is assumed $P(x,z,t) = 0$ for $t > T$ (last 2/2 recorded time sample). Justify the statement. *

it is assumed that after this time ,the energy has propagated away from subsurface under the seismic line. the migration from is than formulated as a wave propogation problem in which the waves generated from the reverse stack

✘

Correct answer

After the last recorded time sample, the energy has propagated away from the subsurface underneath the seismic line.



✘ What kind of deconvolution process will be helpful for AVO analysis? 0/2
What type precaution need to be taken during AVO analysis for this deconvolution process? *

time invariant deconvolution use in avo

✘

✘ Largest over-migration with two-pass approach usually occurs at around. * 0/1

90 degree

45 degree

15 degree

35 degree

Correct answer

45 degree

✘

✓ 3D RMS velocity field can be estimated from 3D pre-stack time migrated data. * 1/1

True

False

✓



✘ Maximum Dip value can be taken care by which post-stack Migration? * 0/1

- 1-pass Kirchhoff
- Cascaded Kirchhoff
- Cascaded FD
- 1-pass FD

✘

Correct answer

- 1-pass Kirchhoff

✘ Find out the angles of the dipping bed before & after migration based on the following information. $\Delta t = 7$ unit & $\Delta x = 10$ unit. * 0/3

1.42

✘

✔ $P(x, z=0, t)$ is applied as a surface boundary condition for the RTM process. * 1/1

- True
- False

✔



✓ A spatially high-frequency event on a time slices is, * 1/1

- Steeply dipping or high-frequency event in time ✓
- Gentle dipping or high-frequency event in time
- Steeply dipping or low-frequency event in time
- Gentle dipping or low-frequency event in time

✗ Find out Migration from the following information. Dip angle = 12 degree ; 0/2
Average velocity = 1200 m/s and Two way travel time = 1500 ms. *

3

✗

✗ In which condition of wavelet migration works good? * 1/2

zero phase

✗

✗ What are the functions are used for designing the Weiner-Hopf optimum 0/2
filter? *

LEAST Square mathode

✗

Correct answer

Autocorrelation of Input trace or Gate; deconvolution filter; cross correlation with input and desired output.



✘ 30-degree Dip limits is a part of which algorithm? *

0/1

- Higher order Explicit
- Lower order Explicit
- Implicit
- None of the above

✘

Correct answer

- Implicit

✔ What is/are the input parameter/parameters of the Kirchhoff Migration from the following? *

1/1

- Aperture width
- Maximum dip
- Velocity field
- All mentioned above
- Other:

✔

✔ Tau-P transformation is a special case of RADON transformation. *

1/1

- True
- False

✔



✓ Identified the record time of the below-mentioned wavelet. *

1/1



- Early
- Middle
- Late
- Dual



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