

BAB V

SIMPULAN DAN SARAN

5.1 Simpulan

Berdasarkan hasil penelitian dan pembahasan, dapat diambil kesimpulan sebagai berikut:

1. Masalah stres yang terkait dengan tingkat kognitif adalah identifikasi masalah (C1), penyelesaian rencana (C2), penyelesaian rencana implementasi (C3), dan penilaian (C4).
2. Alat Penilaian Keterampilan Pemecahan Masalah dikembangkan sebagai dasar bagi siswa sekolah menengah untuk mempersiapkan contoh yang tepat untuk digunakan dalam tekanan materi dengan kriteria sebagai berikut:
 - a. Sebagai pertanyaan deskriptif, evaluator memenuhi persyaratan validitas konten yang diambil dalam kategori kelayakan setiap item, terutama 0,92 hingga 1,00.
 - b. Alat penilaian tipe soal deskriptif memenuhi syarat reliabilitas dengan skor 0,8 dalam kategori reliabilitas.
 - c. Alat evaluasi format deskriptor memenuhi persyaratan model fit, dibuktikan dengan diperoleh nilai mean INFI MNSQ sebesar 0,97 dan standar deviasi sebesar 0,20. 76 hari Alat penilaian gaya pertanyaan deskriptif memenuhi persyaratan untuk item yang cukup sulit dengan skor kesulitan 0,2 hingga 0,2.

3. Dapat disimpulkan bahwa keterampilan pemecahan masalah siswa setelah menggunakan contoh yang dibuat pada topik tekanan naik dengan standar gain 0,33 mengalami peningkatan keterampilan pemecahan masalah.

5.2 Saran

Berdasarkan hasil survei dan keterbatasan survei, peneliti ingin mempertimbangkan waktu survei dan membuat alat penilaian serupa agar survei dapat dilakukan sesuai rencana. Berdasarkan hasil analisis, perangkat penilaian yang dibuat dalam penelitian ini dapat digunakan oleh guru dan siswa saat pembelajaran fisika di sekolah.



DAFTAR PUSTAKA

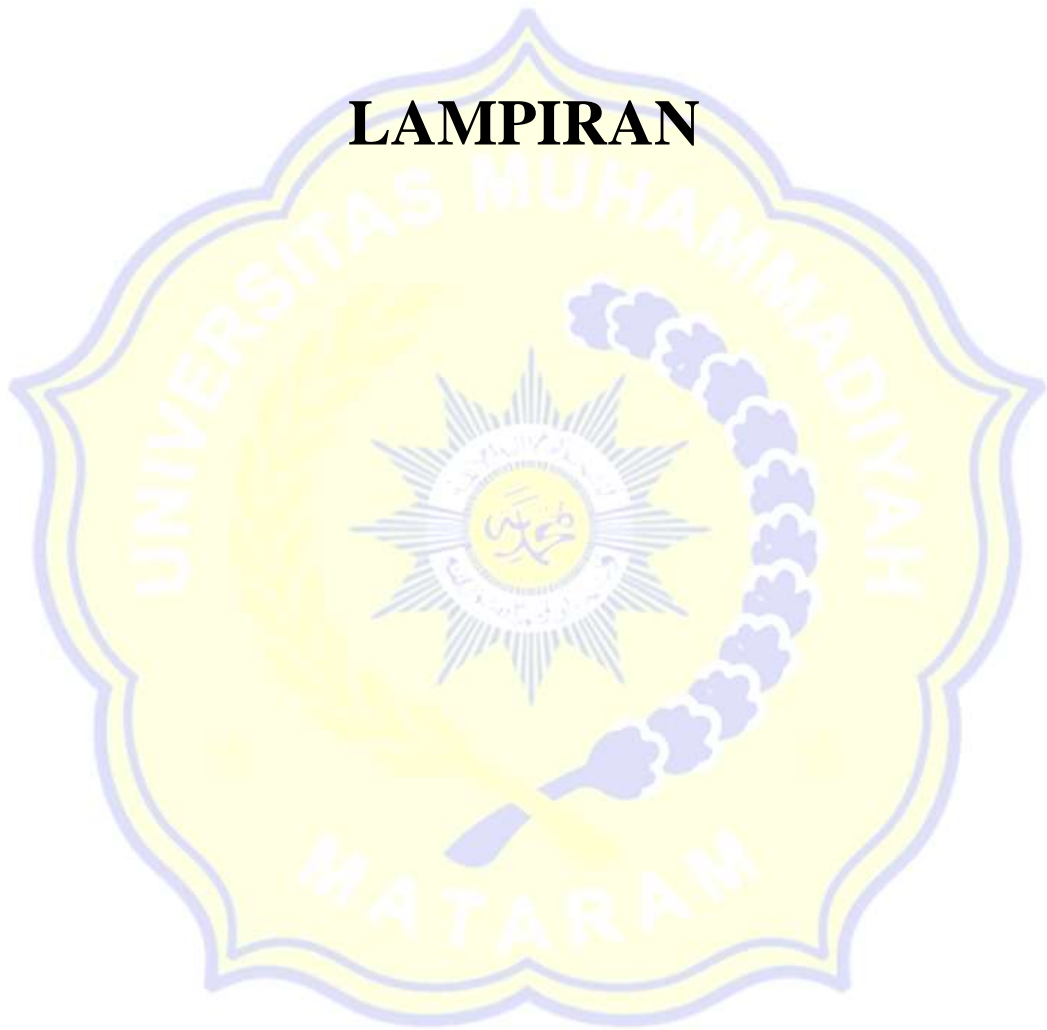
- Algarni, A., Birrel, C., & Porter, A. (2012). Evaluating the use of worked examples and problem solving methods in teaching mathematics for esl students at the tertiary level. *Proceedings of the Fifth Annual ASEARCH Conference; Looking to the Future*, 5, 2-3.
- Algina, J. & Crocker, L. (1986). *Introduction to classical and modern test theory*. New York: Holt Rinehart and Winston INC.
- Anderson, L. W., & Krathwohl, D. R. (2010). *Kerangka landasan untuk pembelajaran, pengajaran, dan asesmen: revisi taksonomi pendidikan bloom*. (Alih bahasa Agung Prihantoro). Yogyakarta: Pustaka Pelajar. (Edisi asli diterbitkan tahun 2000 oleh Longman, Inc.)
- Arifin, Z. (2013). *Evaluasi pembelajaran*. Bandung: PT Remaja Rosdakarya.
- Arikunto, S. (2012). *Prosedur penelitian*. Yogyakarta: Rineka Cipta.
- _____. (2013). *Prosedur penelitian (suatu pendekatan praktik)*. Yogyakarta: Rineka Cipta.
- Atkinson, R.K., Derry, S.J., Renkl, A., & Wortham, D.W. (2000). Learning from examples: Instructional principles from the worked examples research. *Review of Educational Research*, 70, 181–214.
- Azwar, S. (2014). *Penyusunan skala psikologi*. Yogyakarta: Pustaka Pelajar.
- Bransford, J., & B. S. Stein. (1993). *The IDEAL problem solver: a guide for improving thinking, learning, and creativity* (2nd ed). New York, NY: W. H. Freeman.
- Daryanto. (2008). *Evaluasi pendidikan*. Jakarta: Rineka Cipta
- Djaali & Muljono, P. (2008). *Pengukuran dalam bidang pendidikan*. Jakarta: Grasindo.

- Gerace, William J. & Beatty, Ian D. (2005). Teaching vs. learning: changing perspectives on problem solving in physics instruction. 9th Common Conference of the Cyprus Physics Association and Greek Physics Association, 1-10.
- Giancoli, D. C. (2001). Fisika edisi kelima. (Alih bahasa Yuhilza Hanum & Irwan Arifin). Jakarta: Erlangga. (Edisi asli diterbitkan tahun 1998 oleh PrenticeHall, Inc.)
- Gog, T.V., Paas, F., & Merrienboer Van, G.J.J. (2008). Effects of studying sequences of process-oriented and product-oriented worked examples on troubleshooting transfer efficiency. *Learning and Instruction*, 18, 211-222.
- Halliday, D., Resnick, R., & Walker, J. (2010). Fisika dasar edisi ketujuh jilid 1. (Alih bahasa Euis Sustini, et al). Jakarta: Erlangga. (Edisi asli diterbitkan tahun 2005 oleh John Wiley & Sons, Inc.)
- Istiyono, E., Mardapi, D., & Suparno. (2014). Pengembangan tes kemampuan berpikir tingkat tinggi fisika (phythots) peserta didik sma. *Jurnal Penelitian dan Evaluasi Pendidikan UNY*, 1-12.
- Jonassen, D. H. (2004). *Learning to solve problem: an instructional design guide*. San Fransisco, CA: Pfeiffer.
- _____. (2010). Research issues in problem solving. *Educational Paradigm for Learning and Instruction*, 1-15.
- Kay, K. (2010). 21st century skills: Why they matter, what they are, and how we get there. Foreword in: *21st Century Skills: Rethinking how students learn*, J. Bellanca and R. Brandt (eds.). US: Learning Tree.
- Kirschner, F., paas, F., & Kirschner, P. A. (2009). Individual and group-based learning from complex cognitive tasks: Effects on retention and transfer efficiency. *Computers in Human Behavior*, 25(2), 306-314.

- Krulik, S., & Rudnick, J. A. (1995). A new sourcebook for teaching reasoning and problem solving in elementary school. Needham Heights: Allyn & Bacon
- Larkin, J.H., & Reif, F. (1979). Understanding and teaching problem solving in physics. *European Journal of Science Education*, 1(2), 191-203.
- Mardapi, D. (2012). Pengukuran, penilaian, dan evaluasi pendidikan. Yogyakarta: Nuha Medika.
- McLaren, B. M. & Isotani, S. (2011). When is it best to learn with all worked examples? 15th International Conference on Artificial Intelligence in Education (AIED 2011), 222–229.
- Moreno, R. (2006). When worked examples don't work: Is cognitive load theory at an Impasse? *Learning and Instruction*, 16, 170-181.
- Mundilarto. (2010). Penilaian hasil belajar fisika. Yogyakarta: UNY Press
- Permendikbud Nomor 23 Tahun 2016 tentang Standar Penilaian Pendidikan
- Polya, G. (1962). *Mathematical on understanding, learning, and teaching problem solving*. USA: John Wiley & Sons.
- Renkl, A. (2014). Learning from worked example : how to prepare student from meaningful problem solving. *Teks Book Applying Science of Learning in Education*, 118.
- Retnowati, E. (2008) Keterbatasan memori dan implikasinya dalam mendesain metode pembelajaran matematika. *Seminar Nasional Matematika dan Pendidikan Matematika*, 978-979.
- _____. (2012). Worked examples in mathematics. *International STEM in Education Conference*. Beijing, China: November 24-27 2012.
- Roediger, L. H., A Mary. (2012). Inexpensive techniques to improve education: applying cognitive psychology to enhance educational practice, *Journal of Applied Research in Memory and Cognition*, [http://dx.doi.org/10.1016/S0959-4752\(01\)00030-5](http://dx.doi.org/10.1016/S0959-4752(01)00030-5)

- Schunk, D. (2012). Teori-teori pembelajaran: perspektif pendidikan edisi keenam. (Alih bahasa Eva Hamdiah, Rahmat Fajar). Yogyakarta: Pustaka Pelajar. (Edisi asli diterbitkan tahun 2012 oleh Pearson Education, Inc.)
- Subali, B. (2012). Prinsip asesmen dan evaluasi pembelajaran. Yogyakarta: UNY Press
- Subali, B., & Suyata P. (2011). Panduan analisis data pengukuran pendidikan untuk memperoleh bukti empirik kesahihan menggunakan program quest, Yogyakarta: Lembaga Penelitian dan Pengabdian pada Masyarakat Universitas Negeri Yogyakarta.
- Sudijono, A. (1995). Pengantar evaluasi pendidikan. Jakarta: Rajawali Pers
- Suherman, E. (2003). Evaluasi pembelajaran matematika. Bandung: JICA UPI.
- Sweller, J. (1988). Cognitive load during problem solving: effects on learning, *Cognitive Science*, 12, 257-28.
- Yamin, M. 2008. *Paradigma Pendidikan Konstruktivistik*. Jakarta: Gaung Persada Press.
- _____. (2006). The worked example effect and human cognition. *Learning and Instruction*, 16, 165–169. Sweller, J., Aryes, P., & Kalyuga, S. (2011). *Cognitive load theory*. New York, NY: Springer.
- Thiagarajan, S., Semmel D.S., & Semmel M.I. (1974). *Instructional development for training teachers of exceptional children: a sourcebook*. Indiana: Indiana University.
- Widoyoko, E. P. (2011). Teknik penyusunan instrumen penelitian. Yogyakarta: Pustaka Pelajar.
- Young, H. D., & Freedman, R. A. (2002). Fisika universitas edisi kesepuluh jilid 1. (Alih bahasa Endang Juliastuti). Jakarta: Erlangga. (Edisi asli diterbitkan tahun 2000 oleh Addison Wesley Longman, Inc.)
- Yun, C. & MacGregor, J. N. (2011). Human performance on insight problem solving: a review. *the journal of problem solving*, 3(2), 119-150.
- Zubaidah, S., dkk. 2017. Ilmu Pengetahuan Alam SMP/MTS Kelas VIII Semester 2. Jakarta: Kementerian Pendidikan dan Kebudayaan.

LAMPIRAN



Lampiran 1. Lembar Validasi Rencana Pelaksanaan Pembelajaran

1. Penilaian Keefektifan RPP

**LEMBAR VALIDASI
RENCANA PELAKSANAAN PEMBELAJARAN**

Tujuan : Mengukur Kelengkapan Rencana Pelaksanaan Pembelajaran

Materi Pokok : Tuhannu Zai

Kelas/Semester : VIII/Gesang

Judul Penelitian : Pengembangan *Assessment Kompetensi* untuk Mengukur Kemampuan *Problem Solving* Pada Materi Pokok Tuhannu Zai Sebagai Dasar Penyusunan *Workshop* Examples Siswa Kelas VIII MTs Al-Ranayah Mataram

Peneliti : Nury Hardiani

Validator : *Maria SPd*

Petunjuk Penilaian

1. Angket ini digunakan untuk mengetahui pendapat ahli terhadap rencana pelaksanaan pembelajaran yang telah dibuat.
2. Berikan tanda check list (✓) pada setiap aspek yang dinilai sesuai dengan kriteria berikut: 1: tidak baik 2: kurang baik 3: baik 4: sangat baik
3. Setiap kriteria penilaian harus diisi. Jika ada penilaian yang tidak sesuai atau ada kekurangan, saran/kritik dapat dituliskan pada tempat yang tersedia.

Penilaian

| No | Aspek yang dinilai | Skala Penilaian | | | |
|----|---|-----------------|---|---|---|
| | | 1 | 2 | 3 | 4 |
| 1 | Perumusan Tujuan Pembelajaran | | | | |
| | 1. Kejelasan Kompetensi Dasar | | | | ✓ |
| | 2. Kesesuaian Kompetensi Dasar dengan Tujuan Pembelajaran | | | ✓ | |
| | 3. Ketepatan Pengjabaran Kompetensi Dasar kedalam Indikator | | ✓ | | |
| | 4. Kesesuaian indikator dengan tujuan pembelajaran | | | ✓ | |

| | | | | |
|-----|--|--|---|---|
| II | Isi yang Disajikan | | | |
| | 1. Sistematika RPP | | | ✓ |
| | 2. Kesesuaian | | ✓ | |
| | 3. Kejelasan scenario pembelajaran (tahap-tahap kegiatan pembelajaran meliputi pendahuluan, inti, dan penutup) | | ✓ | |
| III | Bahasa | | | |
| | 1. Penggunaan bahasa sesuai dengan EYD | | | ✓ |
| | 2. Kejelasan scenario pembelajaran pada materi Tekanan Zat | | | ✓ |
| IV | Waktu | | | |
| | 1. Kesesuaian alokasi yang digunakan | | | ✓ |
| | 2. Terdapat rincian waktu untuk setiap tahap pembelajaran | | | ✓ |

Komentar dan saran

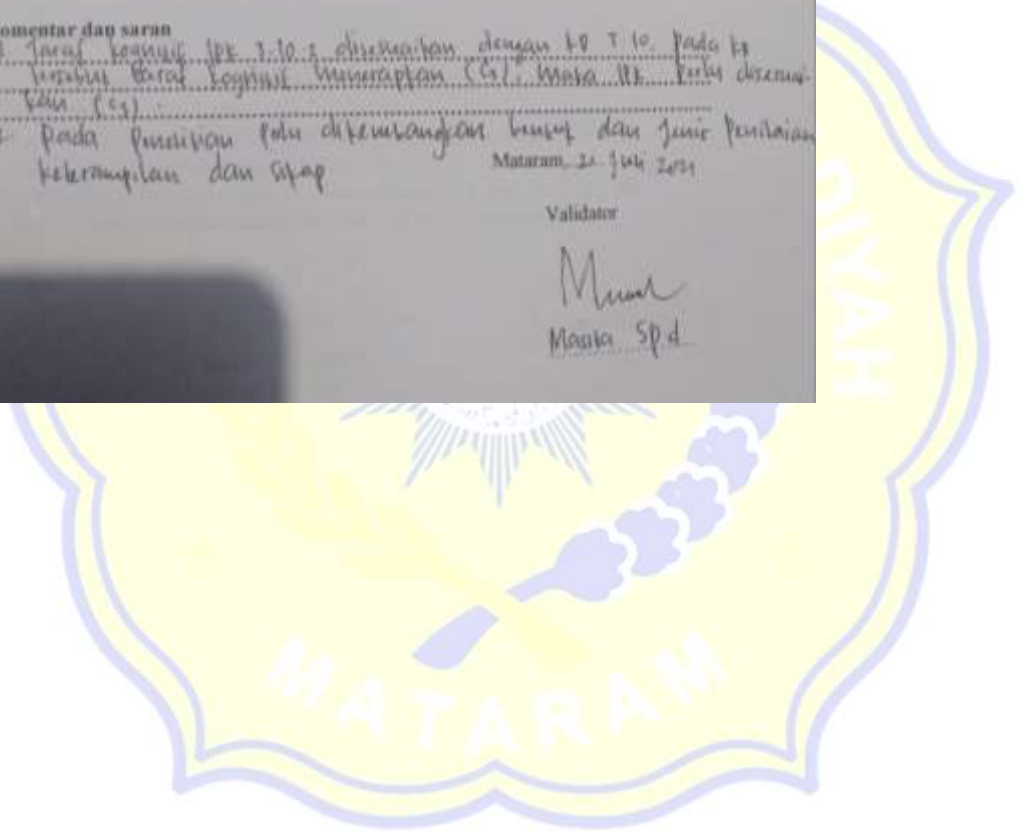
1. Taraf kesesuaian ppt 3.10 & disesuaikan dengan k.d 3.10 pada k.d tersebut sudah kesesuaian. Menerapkan (s.d. Matrik. Pk. Perly disesuaikan k.d. s.d.)

2. Pada penulisan perlu dikembangkan bentuk dan jenis penilaian keterampilan dan sikap

Mataran, 21 Juli 2021

Validator:

M. Masika Spd



Lampiran 2. Lembar Validasi Soal Pretest dan Posttest

LEMBAR VALIDASI SOAL

Tujuan : Mengukur kelayakan soal
Materi Pokok : Tekanan Zat
Kelas/Semester : VIII/Gemap
Judul Penelitian : Pengembangan *Assessment Kognitif* untuk Mengukur Kemampuan *Problem Solving* Pada Materi Pokok Tekanan Zat Sebagai Dasar Penyusunan *Worksheet* Examples Siswa Kelas VIII MTS Al-Raisiyah Mataram
Peneliti : Nury Hardianti
Validator : M. Firman Ramadhan, M. Pd-Pd.

Petunjuk Penelitian

1. Angket validasi ini digunakan untuk mengetahui pendapat ahli terhadap soal yang telah dibuat.
2. Berikan tanda check list (✓) apabila aspek yang dinilai sesuai dengan persyaratan.
3. Berikan tanda silang (X) apabila aspek yang dinilai tidak sesuai dengan persyaratan.
4. Setiap kriteria penilaian harus diisi. Jika ada penilaian yang tidak sesuai atau ada kekurangan, saran/kritik dapat dituliskan pada tempat yang tersedia.

| No | Aspek | Butir soal | | | | | | |
|----|--|------------|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| A. | Materi | | | | | | | |
| 1. | Soal sesuai dengan indikator (menuntut tes tertulis untuk berbentuk uraian) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2. | Soal tidak mengandung unsure SARAPPIK (Suku, Agama, Ras, Antargolongan, pornografi, Politik, Propaganda, dan Kekerasan). | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3. | Soal menggunakan stimulasi yang menarik. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |



| | | | | | | | | |
|---------------------|---|---|---|---|---|---|---|---|
| 4 | Soal menggunakan stimulus yang kontekstual | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5 | Soal mengukur level kognitif penalaran (menganalisis, mengevaluasi, dan mencipta). | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| B. Kontruksi | | | | | | | | |
| 6 | Rumusan kalimat soal atau pertanyaan menggunakan kata-kata Tanya atau perintah yang menuntut jawaban terurai. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 7 | Memuat petunjuk yang jelas tentang cara mengerjakan soal. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 8 | Ada pedoman Penskor/ rubric sesuai dengan kriteria/ kalimat yang mengandung kata kunci. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 9 | Gambar, grafik, tabel, diagram, atau sejenisnya jelas dan berfungsi. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 10 | Butir soal tidak bergantung pada jawaban soal lain | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| C. Bahasa | | | | | | | | |
| 11 | Menggunakan bahasa yang sesuai dengan kaidah bahasa Indonesia. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 12 | Soal menggunakan kalimat yang komunikatif. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Komentar dan saran

Sangat bagus



Lampiran 3. Lembar Validasi soal Worked Examples

LEMBAR VALIDASI SOAL

Tujuan : Mengukur Kelayakan soal
 Materi Pokok : Tekanan Zat
 Kelas/Semester : VIII/Genap
 Judul Penelitian : Pengembangan *Assessment* Kognitif untuk Mengukur Kemampuan *Problem Solving* Pada Materi Pokok Tekanan Zat Sebagai Dasar Penyusunan *Worked Examples* Siswa Kelas VIII MTS Al-Ranisyah Mataram
 Penulis : Nury Hardanti
 Validator : M. Firman Ramadhan, M.Pd-Si

Petunjuk Penelitian

1. Angket validasi ini digunakan untuk mengetahui pendapat ahli terhadap soal yang telah dibuat.
2. Berikan tanda check list (✓) apabila aspek yang dinilai sesuai dengan pernyataan.
3. Berikan tanda silang (X) apabila aspek yang dinilai tidak sesuai dengan pernyataan.
4. Setiap kriteria penilaian harus diisi. Jika ada penilaian yang tidak sesuai atau ada kekurangan, saran/kritik dapat dituliskan pada tempat yang tersedia.

| No | Aspek | Butir soal | | | | | | | | | | | | | | | | | | | |
|-------|--|------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| A. 1. | Materi Soal sesuai dengan indikator (memeritai tes tertulis untuk berbentuk uraian). | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2. | Soal tidak mengandung unsur SARAPPK. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |



| | | | | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9. | Gambar, grafik, tabel, diagram, atau sejenisnya jelas dan berfungsi | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 10. | Huruf soal tidak bergantung pada jawaban soal lain | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| C. 11. | Bahasa Menggunakan bahasa yang sesuai dengan kaidah bahasa Indonesia. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 12. | Soal menggunakan kalimat yang komunikatif. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

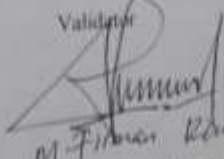
Komentar dan saran

Sudah baik

KESIMPULAN

- Instrument penilaian yang berupa soal uraian dinyatakan:
- () Layak diuji cobakan tanpa revisi
 - () Layak diuji cobakan dengan revisi
 - () Tidak layak diuji cobakan

Mataram, 16. Juli 2021

Validator

 M. Firdaus Ramadhan



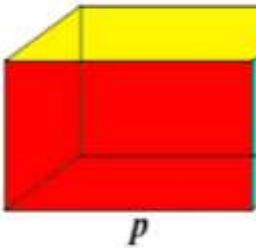
Lampiran 4. Kisi-kisi soal Assessment kognitif problem solving

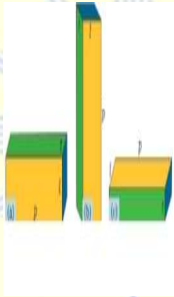
| No | Kompetensi Dasar | Indikator Kompetensi | Contoh Soal | Pembahasan | Level Kognitif | Problem solving |
|-----|---|--|--|--|----------------|-----------------------------------|
| 3.1 | Memahami tekanan zat dan penerapannya dalam kehidupan sehari-hari, termasuk tekanan darah, osmosis, dan kapilaritas jaringan angkut pada tumbuhan | 3.1.1 Memahami fenomena yang berhubungan dengan tekanan zat padat, cair, dan gas | 1. Budi mendorong gerobak dengan kedua tangannya dan membutuhkan gaya sebesar 90 Newton. Apabila luas sebuah telapak tangan adalah 150 cm^2 maka | Diketahui: $F = 90$ Newton $A = 150$ $\text{cm}^2 = 0,015$ m^2 | C1 | Mengidentifikasi permasalahan |
| | | | berapakah tekanan yang diberikan budi pada gerobak | Rumus mencari tekanan yaitu: $P = \frac{F}{A}$ $P = \frac{F}{(2 \text{ tangan} \times A)}$ | C2 | Merencanakan penyelesaian |
| | | | | $P = \frac{90 \text{ N}}{(2 \times 0,015)}$ $P = \frac{90}{0,03}$ | C3 | Melaksanakan rencana penyelesaian |

| | | | | | | |
|--|--|--|--|---|-----------|-------------------------------|
| | | | | $P=3000$ Pascal Jadi tekanan yang diberikan budi pada gerobak adalah 3000 Pascal | C4 | Mengevaluasi |
| | | | 2. Seorang penyelam menyelam dengan kedalaman 3 m, massa jenis air 1000 kg/m^3 , konstanta gravitasi pada tempat tersebut adalah 10 N/kg . Berapakah besar tekanan hidrostatik | Diketahui: $h = 3$ m $\rho =$ 1000 kg/m^3 $g =$ 10 N/kg Ditanyakan: $P_h =$ | C1 | Mengidentifikasi Permasalahan |

| | | | | | | |
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| | | | | ... ? | | |
| | | | | Rumus mencari tekanan hidrostatis yaitu: $P_h = p \cdot g \cdot h$ | C2 | Merencanakan penyelesaian |
| | | | | $P_h = 1000 \text{ kg} \cdot m^3 \cdot 10 / kg \cdot 3 \text{ m}$ | C3 | Melaksanakan rencana penyelesaian |
| | | | | $p_h = 30.000 \text{ N/m}^2$ Jadi nilai besar tekanan hidrostatis adalah 30.000 N/m^2 | C4 | Mengevaluasi |
| | | | 3. Sebuah benda memiliki berat 50 N, ketika | Diketahui: wudara = 50 N wair = 45 | C1 | Mengidentifikasi Permasalahan |

| | | | | | | |
|--|--|--|--|---|-----------|-----------------------------------|
| | | | ditimbang didalam air beratnya hanya 45 N, maka berapakah gaya keatas yang menekan benda tersebut. | N Ditanyakan: $F_a = \dots?$ | | |
| | | | | Jawaban: Rumus mencari nilai F_a yaitu: $F_a = w_{udara} - w_{air}$ | C2 | Merencanakan penyelesaian |
| | | | | $F_a = 50 \text{ N} - 45 \text{ N}$ | C3 | Melaksanakan rencana penyelesaian |
| | | | | $F_a = 5 \text{ N}$ Jadi, gaya keatas yang menekan adalah 5 Newton | C4 | Mengevaluasi |
| | | | 4.sebuah balok dengan massa 10 kg dengan panjang 40 cm, lebar 20 cm dan tinggi 10 cm | Diketahui: $m = 10 \text{ kg}$ $p = 40$ | C1 | Mengidentifikasi Permasalahan |

| | | | | | | |
|--|--|--|--|---|-----------|-------------------------------------|
| | | | <p>diletakkan diatas lantai. Hitunglah tekanan balok pada lantai</p>  | <p>cm = 0,4 m $l = 20 \text{ cm} = 0,2 \text{ m}$ $T = 10 \text{ cm} = 0,1 \text{ m}$ Ditanya: $P = \dots?$</p> | | |
| | | | | <p>Tekan an balok dihitu ng denga n rumus dibaw ah ini: $A = p \times l$ $P = \frac{F}{A}$ $P = \frac{m \times g}{A}$</p> | C2 | Merencan a penyelesai an |
| | | | | <p>$A = p \times l = 0,4 \times 0,2 = 0,08 \text{ m}^2$ $P = \frac{F}{A}$ $P = \frac{m \times g}{A}$ $P = \frac{10 \times 10}{0,08}$</p> | C3 | Melaksana kan rencana Penyelesai an |
| | | | | <p>$P = 1250 \text{ Pa}$ Jadi nilai tekanan</p> | C4 | Mengeval uasi |

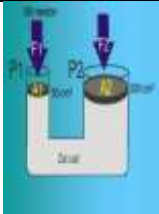
| | | | | | | |
|--|--|--|--|---|-----------|-------------------------------|
| | | | | balok pada lantai adalah sebesar sebesar 1250 Pa | | |
| | | | <p>5. Panjang (P) 12 cm, lebar (l) 8 cm, dan tinggi (t) 3 cm serta berat sebesar 30 N. Jika balok tersebut diletakkan dengan posisi seperti gambar a, b, dan c, tentukan besar tekanan pada masing-masing posisi tersebut!</p>  | <p>Diketahui: $P = 12$ $cm = 0,12$ m $l = 8$ cm $t = 3$ cm $= 0,03$ m $w = 30$ N</p> <p>Ditanya:</p> <p>a. $F_a = \dots ?$</p> <p>b. $F_b = \dots ?$</p> <p>c. $F_c = \dots ?$</p> | C1 | Mengidentifikasi Permasalahan |
| | | | | <p>a. Luas permukaan (Aa) = panjang (p) x tinggi</p> <p>b. Luas permukaan (Ab) = Lebar (L) x</p> | C2 | Merencanakan penyelesaian |

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| | | | | <p>tinggi (t)</p> <p>c. Luas permukaan (Ac) = panjang (p) x lebar (l)</p> <p>Secara sistematis, tekanan pada zat dapat dirumuskan</p> $P = \frac{F}{A}$ | | |
| | | | | <p>Luas permukaan (Aa) = panjang (p) x tinggi = 0,12 m x 0,03 m = 0,0036 m²</p> <p>Luas permukaan (Ab) = panjang (p) x tinggi (t) = 0,08 m x 0,03 m = 0,0024 m²</p> <p>Luas permukaan (Ac)</p> | C3 | Melaksanakan rencana Penyelesaian |

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| | | | | <p>= panjang (p) x lebar (l) = 0,12 m x 0,08 m = 0,0096 m^2 Secara sistematis, tekanan pada zat dapat di rumuskan P = $\frac{F}{A}$ Tekanan yang dihasilkan balok saat berada pada posisi (a): $P_a = \frac{F}{A_a} = \frac{30\text{ N}}{0,0036\text{ m}^2}$ = 8333,3 N/m^2 Jadi tekanan yang dihasilkan balok saat berada pada posisi (a)</p> | C4 | Mengevaluasi |
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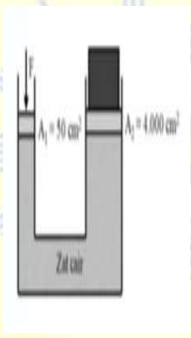
| | | | | | | |
|--|--|--|--|--|--|--|
| | | | | <p>sebesar 8333,3 N/m^2.</p> <p>b) Tekanan yang dihasilka n balok saat berada pada posisi (b):</p> $P_b = \frac{F}{Ab}$ $= \frac{30 N}{0,0024 m^2}$ $= 12,500$ N/m^2 <p>Jadi tekanan yang dihasilka n balok saat berada pada posisi (b) sebesar 12,500 N/m^2</p> <p>Tekanan yang dihasilka n balok saat berada</p> | | |
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| | | | | <p>pada posisi (c):</p> $P_c = \frac{F}{A_c}$ $P_c = \frac{30 \text{ N}}{0,0096 \text{ m}^2}$ $= 3,125 \text{ N/m}^2$ $P_c = \frac{30 \text{ N}}{0,0096 \text{ m}^2}$ $= 3,125 \text{ N/m}^2$ <p>Jadi, tekanan yang dihasilkan balok saat berada pada posisi (c) sebesar 3,125 N/m²</p> | | |
| | | 3.1.2 Menghubungkan tekanan zat cair di ruang tertutup | 6. Perhatikan gambar dibawah ini! | <p>Diketahui:</p> <p>F1 = 100 Newton</p> | C1 | Mengidentifikasi Permasalahan |

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| | | dengan tekanan darah manusia |  | $A_1 = 50 \text{ cm}^2$ $A_2 = 300 \text{ cm}^2$ Ditanya: $F_2 = \dots?$ | | |
| | | | | Jawab: $P_1 = P_2$ $\frac{F_1}{A_1} = \frac{F_2}{A_2}$ | C2 | Merencanakan penyelesaian |
| | | | | $\frac{100 \text{ Newton}}{50 \text{ cm}^2}$ $=$ $\frac{F_2}{300 \text{ cm}^2}$ $F_2 =$ $\frac{100 \text{ Ne}}{50 \text{ c}}$ \times 300 cm^2 $F_2 = 2 \times$ 300 | C3 | Melaksanakan Rencana Penyelesaian |
| | | | | $F_2 = 600 \text{ N}$ Jadi nilai gaya kedua adalah 600 N | C4 | Mengevaluasi |
| | | | 7. luas penampang dongkrak hidrolik adalah $A_1 = 0,04 \text{ m}^2$ dan $A_2 = 0,10$ | Diketahui: $A_1 = 0,04 \text{ m}^2$ $A_2 =$ | C1 | Mengidentifikasi Permasalahan |

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| | | | <p>m^2. Jika gaya masukan $F_1 = 5 \text{ N}$ maka hitunglah keluaran gaya maksimum</p> | <p>$0,10 \text{ m}^2$ $F_1 = 5 \text{ N}$ Ditanya: $F_2 = \dots?$</p> | | |
| | | | | <p>Untuk menjawab soal ini gunakan hukum Pascal sebagai berikut: $\frac{F_1}{A_1} = \frac{F_2}{A_2}$</p> | C2 | Merencanakan Penyelesaian |
| | | | | $\frac{F_1}{0,04 \text{ m}^2} = \frac{F_2}{0,1 \text{ m}^2}$ $F_2 = \frac{5 \text{ N} \times 0,1 \text{ m}^2}{0,04 \text{ m}^2}$ | C3 | Melaksanakan Rencana Penyelesaian |
| | | | | <p>$F_2 = 12,5 \text{ N}$ Jadi nilai keluaran F_2 adalah $12,5 \text{ N}$</p> | C4 | Mengevaluasi |
| | | | <p>8. sebuah benda seberat 16.000 N ditempatkan pada penampang $A_2 = 8.000 \text{ cm}^2$ dan penampang $A_1 = 40 \text{ cm}^2$ agar benda tersebut terangkat maka diperlukan gaya sebesar</p> | <p>Diketahui: $A_1 = 40 \text{ cm}^2$ $A_2 = 8.000 \text{ cm}^2$ $F_2 = 16.000 \text{ N}$</p> <p>Ditanya $F_1: \dots?$</p> | C1 | Mengidentifikasi permasalahan |
| | | | | $\frac{F_1}{A_1} = \frac{F_2}{A_2}$ | C2 | Merencanakan penyelesaian |

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| | | | | $\frac{F_1}{40 \text{ cm}^2} = \frac{16.000 \text{ N}}{8.000 \text{ cm}^2}$ $F_1 = \frac{16.000 \text{ N} \times 40}{8.000 \text{ cm}^2}$ $F_1 = 2 \text{ N} \times 40$ | C3 | Melaksanakan rencana Penyelesaian |
| | | | | $F_1 = 80 \text{ N}$ Jadi nilai agar benda tersebut terangkat adalah 80 N | C4 | Mengevaluasi |
| | 3.1.3 | Menghubungkan tekanan zat cair di ruang tertutup dengan osmosis | 9. sebuah benda seberat 36.000 N ditempatkan pada penampang $A_2 = 6.000 \text{ cm}^2$ dan penampang $A_1 = 30 \text{ cm}^2$ agar benda tersebut terangkat maka diperlukan gaya sebesar | Diketahui: $A_1 = 30 \text{ cm}^2$ $A_2 = 6.000 \text{ cm}^2$ $F_2 = 36.000 \text{ N}$ Ditanya $F_1 \dots ?$ | C1 | Mengidentifikasi Permasalahan |
| | | | | $\frac{F_1}{A_1} = \frac{F_2}{A_2}$ | C2 | Merencanakan Penyelesaian |
| | | | | $\frac{F_1}{30 \text{ cm}^2} = \frac{36.000 \text{ N}}{6.000 \text{ cm}^2}$ $F_1 = \frac{36.000 \text{ N} \times 30}{6.000 \text{ cm}^2}$ | C3 | Melaksanakan Rencana penyelesaian |

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| | | | | $F_1 = 6 \text{ N}$ $\times 30$ | | |
| | | | | $F_1 = 180 \text{ N}$ Jadi nilai agar benda tersebut terangkat adalah 180 N | C4 | Mengevaluasi |
| | | | 10. sebuah benda seberat 16.000 N ditempatkan pada penampang A_2 seperti gambar dibawah ini | Diketahui: $A_1 = 50 \text{ cm}^2$ $A_2 = 4.000 \text{ cm}^2$ $F_2 = 16.000 \text{ N}$ Ditanya $F_1: \dots?$ | C1 | Mengidentifikasi permasalahan |
| | | |  | $\frac{F_1}{A_1} = \frac{F_2}{A_2}$ | C2 | Merencanakan Penyelesaian |
| | | | Agar benda tersebut terangkat maka diperlukan gaya sebesar | $\frac{F_1}{50 \text{ cm}^2} = \frac{16.000 \text{ N}}{4.000 \text{ cm}^2}$ $F_1 = \frac{16.000 \text{ N} \times 50}{4.000 \text{ cm}^2}$ $F_1 = 200 \text{ N}$ | C3 | Melaksanakan Rencana Penyelesaian |
| | | | | $F_1 = 200 \text{ N}$ Jadi nilai agar benda tersebut | C4 | Mengevaluasi |

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| | | | | terangkat adalah 200 N | | |
| | | 3.1.4 Mengh ubungk an tekanan zat cair di ruang tertutup dengan peristiw a kapilari tas | 11. jelaskan bagaimana hubungan tekanan zat cair pada ruang tertutup dengan peristiwa kapilaritas | Kapila ritas merup akan segala gejala turun atau naikny a permu kaan zat cair dalam pipa yang sempit (pipa kapiler). | C1 | Mengident ifikasi Permasala han |
| | | | | Gejala ini dapat disebabk an oleh adanya gaya adhesi atau kohesi antara zat cair dengan | C2 | Merencan akan Penyelesai an |

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| | | | | dinding celah. | | |
| | | | | akibatnya bila pembuluh kaca dimasukkan dalam zat cair, permukaanya menjadi tidak sama | C3 | Melaksanakan Rencana Penyelesaian |
| | | | | Jadi hubungan tekanan zat cair pada ruangan tertutup yaitu segala gejala turun atau naiknya permukaan | C4 | Mengevaluasi |

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| | | | | <p>an zat cair dalam pipa yang sempit (pipa kapiler) yaitu disebabk an oleh gaya adhesi dan kohesi yang mengaki batkan pembulu h kaca dimasuk kan dalam zat cair, permuka anya menjadi tidak sama.</p> | | |
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| | | | <p>12. Mengapa ketika batang korek api diletakkan diantara ibu jari dan telunjuk, akan merasakan sakit dibagian ibu jari dan telunjuk</p> | <p>ketika batang korek api diletakkan diantara ibu jari dan telunjuk, akan merasakan sakit dibagian ibu jari dan telunjuk. Hal ini disebabkan karena ujung korek api mempunyai gumpalan.</p> | C1 | Mengidentifikasi Permasalahan |
| | | | | <p>Gumpalan tersebut yang memberikan tekanan yang relative</p> | C2 | Merencanakan Penyelesaian |

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| | | | | kecil. | | |
| | | | | Ujung korek api yang tidak mempunyai gumpalan semakin kecil luas permukaan tempat gaya bekerja maka semakin besar tekanan yang dihasilkan gaya tersebut | C3 | Melaksanakan Rencana Penyelesaian |
| | | | | Jadi yang menyebabkan ketika | C4 | Mengevaluasi |

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| | | | | <p>korek api diletakkan diantara ibu jari dan telunjuk, akan merasakan sakit dibagian ibu jari dan telunjuk yaitu karena semakin kecil luas permukaan tempat gaya bekerja maka semakin besar tekanan yang dihasilkan oleh gaya.</p> | |
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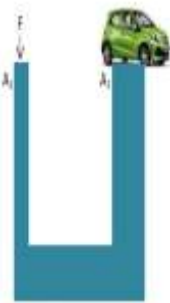
| | | | | | | |
|-----|---|---|--|--|-----------------------------------|-------------------------------|
| 4.1 | Menyajikan data hasil percobaan untuk menyelidiki tekanan zat cair pada kedalaman tertentu, gaya apung, dan kapilaritas, misalnya dalam batang tumbuhan | 4.1.1 Melakukan percobaan untuk menyelidiki tekanan zat padat, cair, dan gas | 13. Sebuah benda memiliki berat 250 N, ketika ditimbang didalam air beratnya hanya 60 N, maka berapakah gaya keatas yang menekan benda tersebut. | Diketahui: wudara = 250 N wair = 60 N Ditanyakan: Fa = ...? | C1 | Mengidentifikasi Permasalahan |
| | | | Rumus mencari nilai Fa yaitu: Fa = wudara - wair | C2 | Merencanakan Rencana Penyelesaian | |
| | | | Fa = 250 N - 60 N | C3 | Melaksanakan Rencana Penyelesaian | |
| | | | Fa = 190 N Jadi, gaya keatas yang menekan 190 Newton | C4 | Mengevaluasi | |
| | | | 14. suatu gas memiliki volume 8 m^3 dan memiliki tekanan 16 atm. Jika gas | Diketahui: $P_1 = 8 \text{ m}^3$ $V_1 = 16 \text{ atm}$ $V_2 = 12 \text{ m}^3$ Ditanya | C1 | Mengidentifikasi Permasalahan |

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| | | | tersebut dimasukkan kedalam wadah yang volumenya 12 m^3 . Maka hitunglah tekanan gas tersebut | $P_2 = \dots?$ $P_1 V_1 = P_2 V_2$ $8 \text{ m}^3 \times 16 \text{ atm} = P_2 \times 12 \text{ m}^3$ $P_2 = \frac{8 \text{ m}^3 \times 16 \text{ atm}}{12 \text{ m}^3}$ $P_2 = \frac{128 \text{ atm}}{12}$ $P = 10,667 \text{ Pa}$ Jadi nilai tekanan yang diberikan anak pada dinding sebesar $10,667 \text{ Pa}$ | | |
| | | | | | C2 | Merencanakan Penyelesaian |
| | | | | | C3 | Melaksanakan rencana penyelesaian |
| | | | | | C4 | Mengevaluasi |
| | | | 15. Mengapa udara pada lapisan atmosfer bumi memberikan tekanan | Karena besarnya tekanan udara diatas permukaan bumi tergantung gaya gravitas. | C1 | Mengidentifikasi Permasalahan |
| | | | | Semakin tinggi suatu tempat, maka semakin | C2 | Merencanakan Penyelesaian |

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| | | | kecil gaya gravitasinya. | | |
| | | | Hal ini disebabkan oleh semakin renggangnya kerapatan udaranya maka semakin kecil tekanan udaranya | C3 | Melaksanakan rencana penyelesaian |
| | | | Jadi yang menyebabkan udara pada lapisan atmosfer bumi memberikan tekanan yaitu karena disebabkan oleh semakin renggangnya kerapatan udaranya maka semakin kecil tekanan udaranya | C4 | Mengevaluasi |

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| | | 4.1.2 Mengidentifikasi melalui percobaan faktor-faktor yang mempengaruhi tekanan zat padat, cair, dan gas | 16. seorang anak mendorong tembok dengan salah satu tangannya. Jika daya dorong yang diberikan 10 N dan luas telapak tangan anak 100 cm^2 maka hitunglah tekanan yang diberikan anak pada dinding | Diketahui: $F = 10 \text{ N}$ $A = 100 \text{ cm}^2$ $= 100 \times 10^{-4}$ Ditanya $P = \dots$? | C1 | Mengidentifikasi Permasalahan |
| | | | | Maka tekanan dihitung dengan rumus sebagai berikut: $P = \frac{F}{A}$ | C2 | Merencanakan Penyelesaian |
| | | | | $P = \frac{10 \text{ N}}{100 \times 10^{-4} \text{ m}^2} = 10^3 \text{ N/m}^2$ | C3 | Melaksanakan Rencana penyelesaian |
| | | | | $P = 1000 \text{ Pa}$ Jadi nilai tekanan yang diberikan anak pada dinding adalah sebesar 1000 Pa | C4 | mengevaluasi |

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|--|-------|---|---|---|-----------|-----------------------------------|
| | 4.1.3 | Menyajikan hasil percobaan tekanan zat padat, cair, dan gas | 17. Eko mendorong gerobak dengan kedua tangannya dan membutuhkan gaya sebesar 200 N. apabila luas sebuah tangan 120 cm^2 maka berapakah tekanan yang diberikan Eko pada gerobak | Diketahui: $F = 200 \text{ N}$ $A = 150 \text{ cm}^2$ $= 0,015 \text{ m}^2$ Ditanya $P = \dots?$ | C1 | Mengidentifikasi Permasalahan |
| | | | | $P = \frac{F}{A}$ $P = \frac{200 \text{ N}}{(2 \text{ tangan} \times A)}$ | C2 | Merencanakan Penyelesaian |
| | | | | $P = \frac{200 \text{ N}}{(2 \times 0,015 \text{ m}^2)}$ $P = \frac{200}{0,03}$ | C3 | Melaksanakan Rencana Penyelesaian |
| | | | | $P = 6,67 \text{ Pascal}$ | C4 | Mengevaluasi |
| | | | 18. Mesin hidrolik pengangkat mobil memiliki luas penampang 1 = 10 cm^2 Dan luas penampang 2 = 60 cm^2 seperti ditunjukkan gambar berikut | Diketahui: $m = 1085 \text{ kg}$ $F_2 = W = 1085 \text{ kg} \cdot 9,8 \text{ m/s}^2 = 10.633 \text{ N}$ $A_1 = 10 \text{ cm}^2$ | C1 | Mengidentifikasi Permasalahan |

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| | | |  <p>Jika berat mobil 1085 kg. maka hitunglah besar gaya yang diperlukan untuk menaikkan mobil</p> | $A_2 = 50 \text{ cm}^2$ Ditanya $F_1 = \dots?$ | | |
| | | | | $\frac{F_1}{A_1} = \frac{F_2}{A_2}$ $F_1 = \frac{F_2}{A_2} \times A_1$ | C2 | Merencanakan Penyelesaian |
| | | | | $F_1 = \frac{10.633}{50 \text{ cm}^2} \times 10 \text{ cm}^2$ | C3 | Melaksanakan Rencana Penyelesaian |
| | | | | $F_1 = 2.126,6 \text{ N}$ Jadi nilai besar gaya pertama F_1 Adalah sebesar 2.126,6 N | C4 | Mengevaluasi |
| | | | <p>19. Sebuah kotak yang berbentuk kubus, memiliki panjang rusuk 0,4 m dicelupkan ke dalam minyak dengan massa jenis</p> | Diketahui: $V_{kubus} = s^3$ = | C1 | Mengidentifikasi Permasalahan |

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|--|--|--|---|---|-----------|-----------------------------------|
| | | | <p>600 kg/m^3. Jika diketahui percepatan gravitasi = 10 m/s^2, hitunglah gaya angkat keatas yang dirasakan kotak tersebut</p> | <p>$\rho_{\text{minyak}} = 600 \text{ kg/m}^3$ Volume kotak yang tercelum = $\frac{3}{4} \times 0,064 \text{ m}^3$ Ditanya $F_a = \dots?$</p> | | |
| | | | | <p>$F_a = \rho_{\text{minyak}} \cdot g \cdot V_{\text{kotak tercelum}}$</p> | C2 | Merencanakan Penyelesaian |
| | | | | <p>$F_a = 600 \text{ kg/m}^3 \cdot 10 \text{ m/s}^2 \cdot 0,046 \text{ m}^3$</p> | C3 | Melaksanakan Rencana Penyelesaian |
| | | | | <p>$F_a = 288 \text{ N}$ Jadi nilai gaya angkat (F_a) adalah sebesar 288 N</p> | C4 | Mengevaluasi |
| | | | <p>20. Suatu gas memiliki volume 4 m^3 dan memiliki tekanan 8 atm. Jika gas tersebut</p> | <p>Diketahui: $P_1 = 8 \text{ atm}$ $V_1 = 4 \text{ m}^3$ $V_2 = 6 \text{ m}^3$ Ditanya $P_2 =$</p> | C1 | Mengidentifikasi Permasalahan |

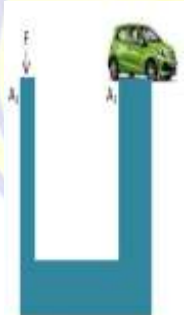
| | | | | | | |
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| | | | dimasukkan kedalam wadah yang volumenya 6 m ³ . Maka hitunglah tekanan gas tersebut | ...? | | |
| | | | | $P_1V_1 = P_2V_2$ | C2 | Merencanakan Penyelesaian |
| | | | | 8 atm x 4 m ³ = P ₂ x 6 m ³ $P_2 = \frac{32}{6}$ | C3 | Melaksanakan Rencana Penyelesaian |
| | | | | $P_2 = 5,34$ atm Jadi nilai tekanan gas kedua (P ₂) adalah sebesar 5,34 atm. | C4 | Mengevaluasi |

Lampiran 5. Pedoman penskoran soal *Prettest*

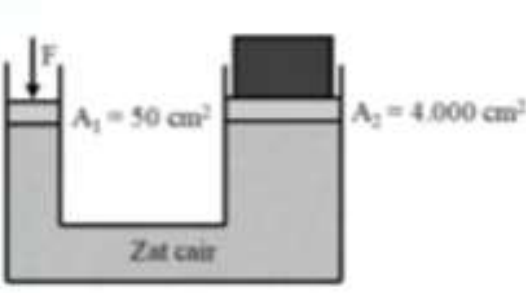
PEDOMAN PENSKORAN SOAL PRETEST

| No | Soal | Pembahasan | Skor |
|----|--|---|------|
| 1. | <p>luas penampang dongkrak hidrolik adalah $A_1 = 0,04 \text{ m}^2$ dan $A_2 = 0,10 \text{ m}^2$. Jika gaya masukan $F_1 = 5 \text{ N}$ maka hitunglah keluaran gaya maksimum</p> | <p>Diketahui: $A_1 = 0,04 \text{ m}^2$ $A_2 = 0,10 \text{ m}^2$ $F_1 = 5 \text{ N}$ Ditanya: $F_2 = \dots?$ Untuk menjawab soal ini gunakan hukum Pascal sebagai berikut: $\frac{F_1}{A_1} = \frac{F_2}{A_2}$ $\frac{5 \text{ N}}{0,04 \text{ m}^2} = \frac{F_2}{0,10 \text{ m}^2}$ $F_2 = \frac{5 \text{ N} \times 0,10 \text{ m}^2}{0,04 \text{ m}^2}$ $F_2 = 12,5 \text{ N}$ Jadi nilai keluaran F_2 adalah 12,5 N</p> | 5 |
| 2. | <p>sebuah benda seberat 16.000 N ditempatkan pada penampang $A_2 = 8.000 \text{ cm}^2$ dan penampang $A_1 = 40 \text{ cm}^2$ agar benda tersebut terangkat maka diperlukan gaya sebesar</p> | <p>Diketahui: $A_1 = 40 \text{ cm}^2$ $A_2 = 8.000 \text{ cm}^2$ $F_2 = 16.000 \text{ N}$ Ditanya F_1:...? $\frac{F_1}{A_1} = \frac{F_2}{A_2}$ $\frac{F_1}{40 \text{ cm}^2} = \frac{16.000 \text{ N}}{8.000 \text{ cm}^2}$ $F_1 = \frac{16.000 \text{ N} \times 40 \text{ cm}^2}{8.000 \text{ cm}^2}$ $F_1 = 2 \text{ N} \times 40$ $F_1 = 80 \text{ N}$ Jadi nilai agar benda tersebut terangkat adalah 80 N</p> | 5 |

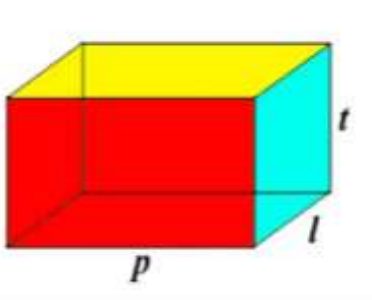
| | | | |
|----|---|--|---|
| 3. | <p>sebuah benda seberat 36.000 N ditempatkan pada penampang $A_2 = 6.000 \text{ cm}^2$ dan penampang $A_1 = 30 \text{ cm}^2$ agar benda tersebut terangkat maka diperlukan gaya sebesar</p> | <p>Diketahui: $A_1 = 30 \text{ cm}^2$ $A_2 = 6.000 \text{ cm}^2$ $F_2 = 36.000 \text{ N}$</p> <p>Ditanya F_1:...? $\frac{F_1}{A_1} = \frac{F_2}{A_2}$</p> $\frac{F_1}{30 \text{ cm}^2} = \frac{36.000 \text{ N}}{6.000 \text{ cm}^2}$ $F_1 = \frac{36.000 \text{ N} \times 30 \text{ cm}^2}{6.000 \text{ cm}^2}$ $F_1 = 6 \text{ N} \times 30$ $F_1 = 180 \text{ N}$ <p>Jadi nilai agar benda tersebut terangkat adalah 180 N</p> | |
| 4. | <p> jelaskan bagaimana hubungan tekanan zat cair pada ruang tertutup dengan peristiwa kapilaritas</p> | <p>Kapilaritas merupakan segala gejala turun atau naiknya permukaan zat cair dalam pipa yang sempit (pipa kapiler). Gejala ini dapat disebabkan oleh adanya gaya adhesi atau kohesi antara zat cair dengan dinding celah. akibatnya bila pembuluh kaca dimasukkan dalam zat cair, permukaanya menjadi tidak sama</p> | 5 |
| 5. | <p>Sebuah benda memiliki berat 250 N, ketika ditimbang didalam air beratnya hanya 60 N, maka berapakah gaya keatas yang menekan benda tersebut.</p> | <p>Diketahui: wudara = 250 N wair = 60 N</p> <p>Ditanyakan: $F_a = \dots?$</p> <p>Rumus mencari nilai F_a yaitu: $F_a = \text{wudara} - \text{wair}$ $F_a = 250 \text{ N} - 60 \text{ N}$ $F_a = 190 \text{ N}$</p> <p>Jadi, gaya keatas yang menekan 190 Newton</p> | 5 |
| 6. | <p>suatu gas memiliki volume 8</p> | <p>Diketahui:</p> | |

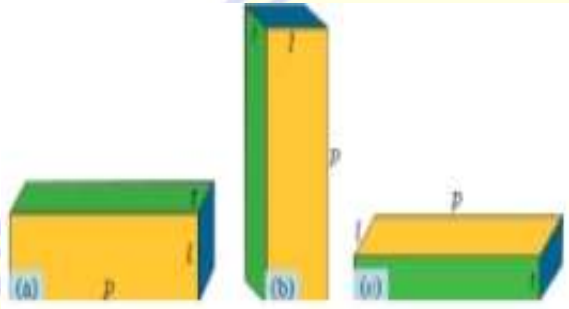
| | | | |
|----|--|--|---|
| | <p>m^3 dan memiliki tekanan 16 atm. Jika gas tersebut dimasukkan kedalam wadah yang volumenya $12 m^3$. Maka hitunglah tekanan gas tersebut</p> | <p> $P_1 = 8 m^3$ $V_1 = 16 atm$ $V_2 = 12 m^3$ Ditanya $P_2 = \dots?$ $P_1 V_1 = P_2 V_2$ $8 m^3 \times 16 atm = P_2$ $\times 12 m^3$ $P_2 = \frac{8 m^3 \times 16 atm}{12 m^3}$ $P_2 = \frac{128 atm}{12}$ $P = 10,667 Pa$ Jadi nilai tekanan yang diberikan anak pada dinding sebesar 10,667 Pa </p> | 5 |
| 7. | <p>6A. Mesin hidrolik pengangkat mobil memiliki luas penampang 1 = $10 cm^2$ Dan luas penampang 2 = $60 cm^2$ seperti ditunjukkan gambar berikut</p>  <p>Jika berat mobil 1085 kg maka hitunglah besar gaya yang diperlukan untuk menaikkan mobil</p> | <p> Diketahui: $m = 1085$ $F_2 = W = 1085 kg \cdot 9,8 m/s^2 = 10.633 N$ $A_1 = 10 cm^2$ $A_2 = 60 cm^2$ Ditanya $F_1 = \dots?$ $\frac{F_1}{A_1} = \frac{F_2}{A_2}$ $F_1 = \frac{F_2}{A_2} \times A_1$ $F_1 = \frac{10.633 N}{60 cm^2} \times 10 cm^2$ $F_1 = 2.126,6 N$ Jadi nilai besar gaya pertama F_1 Adalah sebesar 2.126,6 N </p> | |

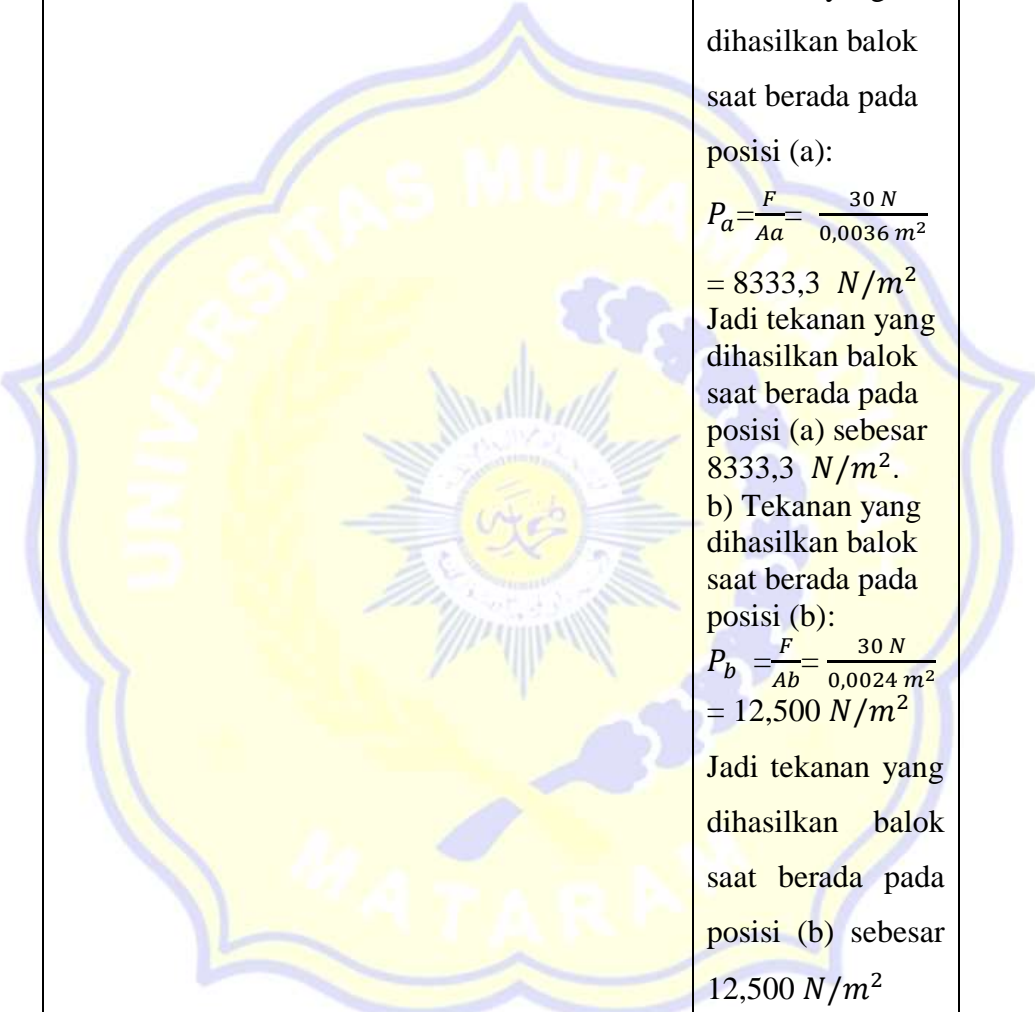
PEDOMAN PENSKORAN SOAL POSTTEST

| No | Soal | Pembahasan | Skor |
|----|---|---|------|
| 1. | <p>3B. sebuah benda seberat 16.000 N ditempatkan pada penampang A_2 seperti gambar dibawah ini</p>  <p>Agar benda tersebut terangkat maka diperlukan gaya sebesar</p> | <p>Diketahui: $A_1 = 50 \text{ cm}^2$ $A_2 = 4.000 \text{ cm}^2$ $F_2 = 16.000 \text{ N}$</p> <p>Ditanya F_1:...?</p> $\frac{F_1}{A_1} = \frac{F_2}{A_2}$ $\frac{F_1}{50 \text{ cm}^2} = \frac{16.000 \text{ N}}{4.000 \text{ cm}^2}$ $F_1 = \frac{16.000 \text{ N} \times 50 \text{ cm}^2}{4000 \text{ cm}^2}$ $F_1 = 4 \text{ N} \times 50$ $F_1 = 200 \text{ N}$ <p>Jadi nilai agar benda tersebut terangkat adalah 200 N</p> | 5 |
| 2. | <p>Sebuah benda memiliki berat 250 N, ketika ditimbang didalam air beratnya hanya 60 N, maka berapakah gaya keatas yang menekan benda tersebut.</p> | <p>Diketahui: wudara = 250 N wair = 60 N Ditanyakan: $F_a = \dots?$ Rumus mencari nilai F_a yaitu: $F_a = \text{wudara} - \text{wair}$ $F_a = 250 \text{ N} - 60 \text{ N}$ $F_a = 190 \text{ N}$ Jadi, gaya keatas yang menekan 190 Newton</p> | 5 |
| 3. | <p>Eko mendorong gerobak dengan kedua tangannya dan membutuhkan gaya sebesar 200</p> | <p>Diketahui: $F = 200 \text{ N}$ $A = 150 \text{ cm}^2 =$</p> | |

| | | | |
|-----------|--|--|----------|
| | <p>N. apabila luas sebuah tangan 120 cm^2 maka berapakah tekanan yang diberikan Eko pada gerobak</p> | <p>$0,015 \text{ m}^2$ Ditanya $P = \dots?$ $P = \frac{F}{A}$ $P = \frac{F}{(2 \text{ tangan} \times A)}$</p> <p>$P = \frac{200 \text{ N}}{(2 \times 0,015 \text{ m}^2)}$ $P = \frac{200}{0,03}$ Jadi tekanan yang diberikan Eko pada gerobak yaitu sebesar $P = 6,67 \text{ Pascal}$</p> | <p>5</p> |
| <p>4.</p> | <p>Sebuah kotak yang berbentuk kubus, memiliki panjang rusuk $0,4 \text{ m}$ dicelupkan ke dalam minyak dengan massa jenis 600 kg/m^3. Jika diketahui percepatan gravitasi $= 10 \text{ m/s}^2$, hitunglah gaya angkat keatas yang dirasakan kotak tersebut</p> | <p>Diketahui: $V_{kubus} = s^3 = (0,04)^3$ $\rho_{minyak} = 600 \text{ kg/m}^3$ Volume kotak yang tercelum $= \frac{3}{4} \times 0,064 \text{ m}^3$ Ditanya $F_a = \dots?$ $F_a = \rho_{minyak} \cdot g \cdot V_{kotak \text{ tercelup}}$ $F_a = 600 \text{ /m}^3 \cdot 10 \text{ m/s}^2 \cdot 0,046 \text{ m}^3$ $F_a = 288 \text{ N}$ Jadi nilai gaya angkat (F_a) adalah sebesar 288 N</p> | <p>5</p> |
| <p>5.</p> | <p>Seorang penyelam menyelam dengan kedalaman 6 m, massa jenis air 2000 kg/m^3, konstanta gravitasi pada tempat tersebut adalah 10 N/kg. Berapakah besar tekanan hidrostatis</p> | <p>Diketahui: $h = 6 \text{ m}$ $\rho = 2000 \text{ kg/ m}^3$ $g = 10/\text{kg}$ Ditanyakan:</p> | |

| | | | |
|----|---|---|---|
| | | $P_h = \dots ?$ Rumus mencari tekanan hidrostatik yaitu: $P_h = p \cdot g \cdot h$ $P_h = 2000 \text{ kg/m}^3 \cdot 10 \text{ kg} \cdot 6 \text{ m}$ $p_h = 120.000 \text{ N/m}^2$ Jadi nilai besar tekanan hidrostatik adalah 120.000 N/m^2 | 5 |
| 6. | sebuah balok dengan massa 10 kg dengan panjang 40 cm, lebar 20 cm dan tinggi 10 cm diletakkan diatas lantai. Hitunglah tekanan balok pada lantai  | Diketahui: $m = 10 \text{ kg}$ $p = 40 \text{ cm} = 0,4 \text{ m}$ $l = 20 \text{ cm} = 0,2 \text{ m}$ $T = 10 \text{ cm} = 0,1 \text{ m}$ Ditanya: $P = \dots ?$ Tekanan balok dihitung dengan rumus dibawah ini: $A = p \times l$ $P = \frac{F}{A}$ $P = \frac{m \times g}{A}$ $A = p \times l = 0,4 \times 0,2 = 0,08 \text{ m}^2$ $P = \frac{F}{A}$ $P = \frac{m \times g}{A}$ $P = \frac{10 \times 10}{0,08}$ | 5 |

| | | | |
|----|--|---|---|
| | | <p>$P = 1250 \text{ Pa}$ Jadi nilai tekanan balok pada lantai adalah sebesar 1250 Pa</p> | |
| 7. | <p>Panjang (P) 12 cm, lebar (l) 8 cm, dan tinggi (t) 3 cm serta berat sebesar 30 N. Jika balok tersebut diletakkan dengan posisi seperti gambar a, b, dan c, tentukan besar tekanan pada masing-masing posisi tersebut!</p>  | <p>Diketahui: $P = 12 \text{ cm} = 0,12 \text{ m}$ $l = 8 \text{ cm}$ $t = 3 \text{ cm} = 0,03 \text{ m}$ $w = 30 \text{ N}$</p> <p>Ditanya: d. $F_a = ..?$ e. $F_b = ..?$ f. $F_c = ...?$</p> <p>d. Luas permukaan (Aa) = panjang (p) x tinggi</p> <p>e. Luas permukaan (Ab) = Lebar (L) x tinggi (t)</p> <p>f. Luas permukaan (Ac) = panjang (p) x lebar (l)</p> <p>Secara sistematis, tekanan pada zat dapat di rumuskan</p> $P = \frac{F}{A}$ <p>Luas permukaan (Aa) = panjang (p) x tinggi $= 0,12 \text{ m} \times 0,03 \text{ m}$ $= 0,0036 \text{ m}^2$</p> <p>Luas permukaan (Ab) $= \text{panjang (p) x tinggi (t)}$ $= 0,08 \text{ m} \times 0,03 \text{ m}$ $= 0,0024 \text{ m}^2$</p> <p>Luas permukaan (Ac)</p> | 5 |

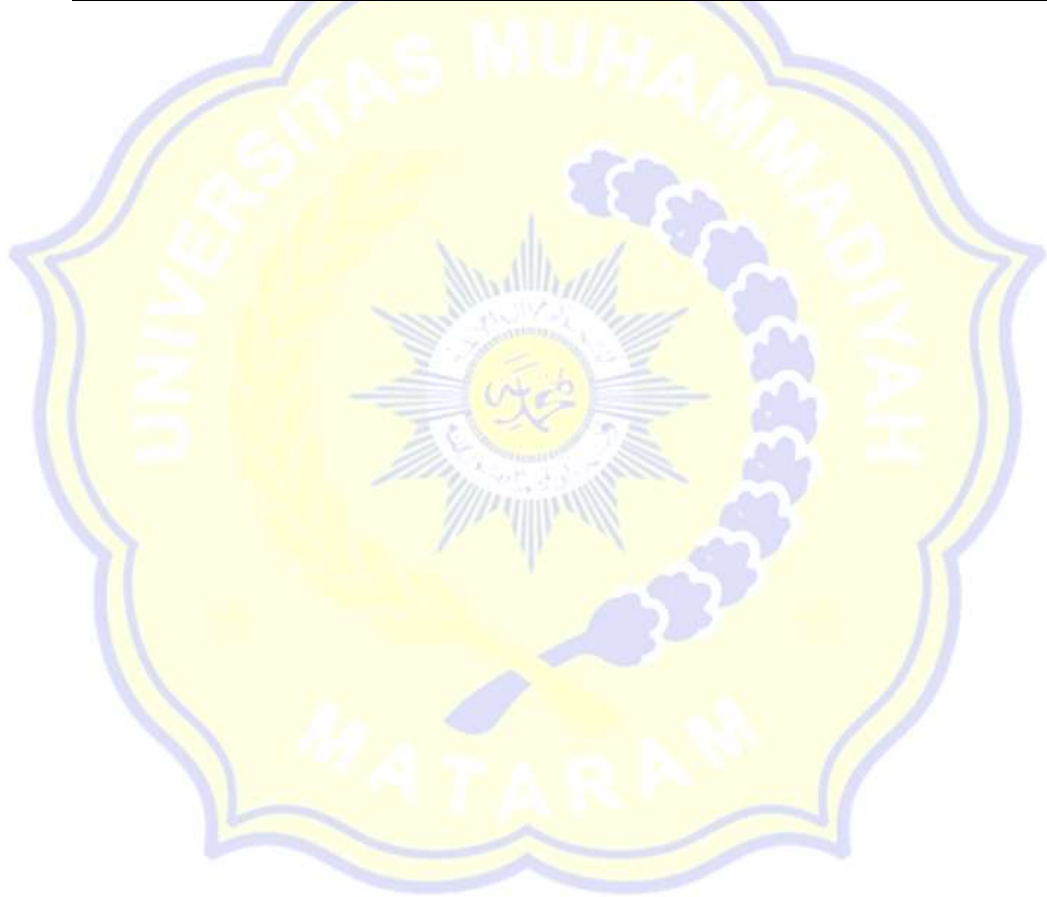
| | | | |
|--|---|--|--|
| |  | <p>= panjang (p) x lebar (l) = 0,12 m x 0,08 m = 0,0096 m² Secara sistematis, tekanan pada zat dapat di rumuskan $P = \frac{F}{A}$ Tekanan yang dihasilkan balok saat berada pada posisi (a): $P_a = \frac{F}{A_a} = \frac{30 N}{0,0036 m^2}$ = 8333,3 N/m² Jadi tekanan yang dihasilkan balok saat berada pada posisi (a) sebesar 8333,3 N/m². b) Tekanan yang dihasilkan balok saat berada pada posisi (b): $P_b = \frac{F}{A_b} = \frac{30 N}{0,0024 m^2}$ = 12,500 N/m² Jadi tekanan yang dihasilkan balok saat berada pada posisi (b) sebesar 12,500 N/m² Tekanan yang dihasilkan balok saat berada pada posisi (c): $P_c = \frac{F}{A_c}$ $P_c = \frac{30 N}{0,0096 m^2}$</p> | |
|--|---|--|--|

| | | | |
|--|--|---|--|
| | | $=3,125 \text{ N/m}^2$ $P_c = \frac{30 \text{ N}}{0,0096 \text{ m}^2}$ $=3,125 \text{ N/m}^2$ <p>Jadi, tekanan yang dihasilkan balok saat berada pada posisi (c) sebesar $3,125 \text{ N/m}^2$</p> | |
|--|--|---|--|

Lampiran 6. Data Skor Uji Coba Soal *Worked Examples*

| Kode | Skor tiap Butir Soal | | | | | | | Total skor |
|------|----------------------|-----|-----|-----|-----|-----|-----|------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| N001 | 2,0 | 5,0 | 4,0 | 1,0 | 4,0 | 5,0 | 2,0 | 23,0 |
| N002 | 3,0 | 5,0 | 2,0 | 5,0 | 3,0 | 5,0 | 5,0 | 28,0 |
| N003 | 1,0 | 5,0 | 2,0 | 4,0 | 0,0 | 5,0 | 0,0 | 17,0 |
| N004 | 1,0 | 5,0 | 4,0 | 2,0 | 1,0 | 5,0 | 1,0 | 19,0 |
| N005 | 1,0 | 1,0 | 2,0 | 1,0 | 3,0 | 1,0 | 1,0 | 10,0 |
| N006 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 4,0 | 23,0 |
| N007 | 5,0 | 3,0 | 2,0 | 5,0 | 3,0 | 5,0 | 5,0 | 28,0 |
| N008 | 1,0 | 1,0 | 2,0 | 1,0 | 0,0 | 1,0 | 1,0 | 7,0 |
| N009 | 3,0 | 5,0 | 5,0 | 5,0 | 3,0 | 5,0 | 5,0 | 31,0 |
| N010 | 5,0 | 3,0 | 3,0 | 4,0 | 3,0 | 5,0 | 5,0 | 28,0 |
| N011 | 5,0 | 5,0 | 3,0 | 5,0 | 3,0 | 5,0 | 5,0 | 31,0 |
| N012 | 1,0 | 5,0 | 2,0 | 1,0 | 0,0 | 1,0 | 1,0 | 11,0 |
| N013 | 5,0 | 2,0 | 2,0 | 2,0 | 3,0 | 5,0 | 5,0 | 24,0 |
| N014 | 1,0 | 1,0 | 2,0 | 1,0 | 0,0 | 0,0 | 0,0 | 5,0 |
| N015 | 5,0 | 3,0 | 3,0 | 2,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| N016 | 1,0 | 5,0 | 4,0 | 2,0 | 3,0 | 1,0 | 1,0 | 17,0 |
| N017 | 5,0 | 3,0 | 5,0 | 2,0 | 1,0 | 5,0 | 5,0 | 26,0 |
| N018 | 2,0 | 3,0 | 3,0 | 5,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| N019 | 1,0 | 5,0 | 2,0 | 1,0 | 0,0 | 1,0 | 1,0 | 11,0 |
| N020 | 5,0 | 3,0 | 3,0 | 2,0 | 1,0 | 5,0 | 3,0 | 22,0 |
| N021 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 4,0 | 23,0 |
| N022 | 1,0 | 1,0 | 0,0 | 1,0 | 0,0 | 1,0 | 1,0 | 5,0 |
| N023 | 5,0 | 5,0 | 3,0 | 3,0 | 2,0 | 4,0 | 5,0 | 27,0 |
| N024 | 3,0 | 5,0 | 2,0 | 5,0 | 3,0 | 1,0 | 3,0 | 22,0 |
| N025 | 1,0 | 1,0 | 2,0 | 1,0 | 2,0 | 1,0 | 1,0 | 9,0 |

| | | | | | | | | |
|------|-----|-----|-----|-----|-----|-----|-----|------|
| N026 | 2,0 | 5,0 | 2,0 | 1,0 | 0,0 | 1,0 | 4,0 | 15,0 |
| N027 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| N028 | 2,0 | 3,0 | 3,0 | 5,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| N029 | 5,0 | 3,0 | 3,0 | 4,0 | 1,0 | 5,0 | 4,0 | 25,0 |
| N030 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| N031 | 1,0 | 1,0 | 2,0 | 1,0 | 0,0 | 1,0 | 0,0 | 6,0 |
| N032 | 2,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 3,0 | 30,0 |
| N033 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 4,0 | 23,0 |
| N034 | 1,0 | 1,0 | 2,0 | 1,0 | 0,0 | 1,0 | 1,0 | 7,0 |
| N035 | 5,0 | 3,0 | 1,0 | 4,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| N036 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 3,0 | 23,0 |



| | | | | | | | | |
|------|-----|-----|-----|-----|-----|-----|-----|------|
| N037 | 5,0 | 5,0 | 3,0 | 5,0 | 2,0 | 5,0 | 2,0 | 27,0 |
| N038 | 1,0 | 5,0 | 1,0 | 1,0 | 0,0 | 1,0 | 1,0 | 10,0 |
| N039 | 5,0 | 3,0 | 3,0 | 4,0 | 0,0 | 4,0 | 3,0 | 22,0 |
| N040 | 5,0 | 3,0 | 0,0 | 4,0 | 1,0 | 5,0 | 4,0 | 22,0 |
| N041 | 1,0 | 1,0 | 2,0 | 1,0 | 0,0 | 2,0 | 1,0 | 8,0 |
| N042 | 1,0 | 1,0 | 1,0 | 1,0 | 0,0 | 1,0 | 0,0 | 5,0 |
| N043 | 3,0 | 1,0 | 2,0 | 1,0 | 0,0 | 1,0 | 1,0 | 9,0 |
| N044 | 4,0 | 2,0 | 3,0 | 5,0 | 3,0 | 5,0 | 5,0 | 27,0 |
| N045 | 1,0 | 1,0 | 2,0 | 1,0 | 3,0 | 1,0 | 0,0 | 9,0 |
| N046 | 3,0 | 5,0 | 3,0 | 4,0 | 3,0 | 1,0 | 3,0 | 22,0 |
| N047 | 5,0 | 3,0 | 3,0 | 2,0 | 1,0 | 2,0 | 3,0 | 19,0 |
| N048 | 5,0 | 5,0 | 5,0 | 3,0 | 3,0 | 5,0 | 5,0 | 31,0 |
| N049 | 1,0 | 1,0 | 2,0 | 1,0 | 0,0 | 1,0 | 0,0 | 6,0 |
| N050 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 3,0 | 23,0 |
| N051 | 1,0 | 5,0 | 2,0 | 1,0 | 0,0 | 1,0 | 1,0 | 11,0 |
| N052 | 4,0 | 5,0 | 3,0 | 4,0 | 0,0 | 5,0 | 0,0 | 21,0 |
| N053 | 1,0 | 1,0 | 0,0 | 1,0 | 0,0 | 1,0 | 1,0 | 5,0 |
| N054 | 5,0 | 3,0 | 3,0 | 4,0 | 0,0 | 5,0 | 3,0 | 23,0 |
| N055 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 5,0 | 25,0 |
| N056 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 4,0 | 23,0 |
| N057 | 2,0 | 5,0 | 2,0 | 1,0 | 4,0 | 5,0 | 2,0 | 21,0 |
| N058 | 3,0 | 3,0 | 5,0 | 5,0 | 2,0 | 5,0 | 5,0 | 28,0 |
| N059 | 1,0 | 1,0 | 2,0 | 1,0 | 2,0 | 1,0 | 1,0 | 9,0 |
| N060 | 5,0 | 3,0 | 3,0 | 3,0 | 1,0 | 5,0 | 3,0 | 23,0 |
| N061 | 3,0 | 3,0 | 2,0 | 4,0 | 0,0 | 5,0 | 3,0 | 20,0 |
| N062 | 5,0 | 4,0 | 3,0 | 4,0 | 0,0 | 1,0 | 1,0 | 18,0 |
| N063 | 1,0 | 3,0 | 1,0 | 4,0 | 0,0 | 3,0 | 5,0 | 17,0 |
| N064 | 3,0 | 5,0 | 4,0 | 4,0 | 0,0 | 1,0 | 4,0 | 21,0 |
| N065 | 5,0 | 2,0 | 3,0 | 4,0 | 4,0 | 5,0 | 3,0 | 26,0 |
| N066 | 5,0 | 3,0 | 2,0 | 0,0 | 1,0 | 5,0 | 4,0 | 20,0 |
| N067 | 1,0 | 5,0 | 2,0 | 1,0 | 0,0 | 1,0 | 3,0 | 13,0 |
| N068 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| N069 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 5,0 | 25,0 |
| N070 | 5,0 | 3,0 | 2,0 | 4,0 | 1,0 | 5,0 | 3,0 | 23,0 |
| N071 | 1,0 | 1,0 | 2,0 | 1,0 | 0,0 | 2,0 | 1,0 | 8,0 |
| N072 | 4,0 | 5,0 | 2,0 | 1,0 | 4,0 | 5,0 | 0,0 | 21,0 |
| N073 | 1,0 | 5,0 | 2,0 | 1,0 | 0,0 | 1,0 | 1,0 | 11,0 |
| N074 | 3,0 | 1,0 | 3,0 | 1,0 | 0,0 | 1,0 | 1,0 | 10,0 |
| N075 | 4,0 | 5,0 | 2,0 | 4,0 | 0,0 | 1,0 | 0,0 | 16,0 |

| | | | | | | | | |
|------|-----|-----|-----|-----|-----|-----|-----|------|
| N076 | 2,0 | 5,0 | 2,0 | 1,0 | 0,0 | 1,0 | 4,0 | 15,0 |
| N077 | 4,0 | 5,0 | 2,0 | 5,0 | 3,0 | 5,0 | 5,0 | 29,0 |
| N078 | 4,0 | 5,0 | 3,0 | 5,0 | 3,0 | 5,0 | 2,0 | 27,0 |
| N079 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| N080 | 5,0 | 3,0 | 2,0 | 4,0 | 1,0 | 5,0 | 3,0 | 23,0 |
| N081 | 3,0 | 5,0 | 3,0 | 5,0 | 3,0 | 5,0 | 3,0 | 27,0 |
| N082 | 0,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 5,0 | 19,0 |
| N083 | 5,0 | 3,0 | 3,0 | 2,0 | 1,0 | 2,0 | 3,0 | 19,0 |
| N084 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 3,0 | 23,0 |
| N085 | 1,0 | 5,0 | 2,0 | 1,0 | 0,0 | 1,0 | 0,0 | 10,0 |
| N086 | 1,0 | 3,0 | 2,0 | 4,0 | 2,0 | 2,0 | 4,0 | 18,0 |
| N087 | 5,0 | 3,0 | 2,0 | 4,0 | 1,0 | 5,0 | 5,0 | 25,0 |
| N088 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 3,0 | 23,0 |
| N089 | 5,0 | 3,0 | 2,0 | 2,0 | 1,0 | 2,0 | 3,0 | 18,0 |
| N090 | 5,0 | 5,0 | 3,0 | 5,0 | 3,0 | 5,0 | 5,0 | 31,0 |
| N091 | 5,0 | 3,0 | 3,0 | 5,0 | 3,0 | 5,0 | 2,0 | 26,0 |
| N092 | 5,0 | 5,0 | 3,0 | 5,0 | 2,0 | 5,0 | 3,0 | 28,0 |
| N093 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 4,0 | 23,0 |
| N094 | 4,0 | 5,0 | 3,0 | 4,0 | 1,0 | 1,0 | 1,0 | 19,0 |
| N095 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| N096 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 5,0 | 25,0 |
| N097 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 3,0 | 23,0 |
| N098 | 5,0 | 5,0 | 2,0 | 2,0 | 4,0 | 5,0 | 0,0 | 23,0 |
| N099 | 3,0 | 4,0 | 3,0 | 0,0 | 0,0 | 5,0 | 3,0 | 18,0 |
| N100 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 4,0 | 23,0 |
| N101 | 5,0 | 3,0 | 3,0 | 4,0 | 3,0 | 0,0 | 4,0 | 22,0 |
| N102 | 5,0 | 5,0 | 3,0 | 4,0 | 0,0 | 0,0 | 4,0 | 21,0 |
| N103 | 4,0 | 5,0 | 3,0 | 5,0 | 3,0 | 5,0 | 5,0 | 30,0 |
| N104 | 5,0 | 3,0 | 2,0 | 2,0 | 1,0 | 2,0 | 3,0 | 18,0 |
| N105 | 2,0 | 5,0 | 3,0 | 1,0 | 0,0 | 1,0 | 5,0 | 17,0 |
| N106 | 1,0 | 1,0 | 3,0 | 1,0 | 0,0 | 1,0 | 1,0 | 8,0 |
| N107 | 1,0 | 5,0 | 1,0 | 4,0 | 3,0 | 5,0 | 1,0 | 20,0 |
| N108 | 2,0 | 1,0 | 2,0 | 1,0 | 2,0 | 1,0 | 1,0 | 10,0 |
| N109 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 4,0 | 23,0 |

Lampiran 7. Data Skor *Pretest*

| Kode | Skor tiap Butir Soal | | | | | | | Total skor |
|------|----------------------|-----|-----|-----|-----|-----|-----|------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| B001 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| B002 | 5,0 | 5,0 | 2,0 | 5,0 | 1,0 | 3,0 | 5,0 | 26,0 |
| B003 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 3,0 | 23,0 |
| B004 | 5,0 | 5,0 | 2,0 | 5,0 | 0,0 | 5,0 | 2,0 | 24,0 |
| B005 | 2,0 | 3,0 | 3,0 | 5,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| B006 | 5,0 | 5,0 | 2,0 | 2,0 | 3,0 | 5,0 | 3,0 | 25,0 |
| B007 | 5,0 | 3,0 | 2,0 | 5,0 | 3,0 | 5,0 | 4,0 | 27,0 |
| B008 | 5,0 | 5,0 | 3,0 | 5,0 | 2,0 | 5,0 | 3,0 | 28,0 |
| B009 | 5,0 | 3,0 | 3,0 | 5,0 | 5,0 | 1,0 | 0,0 | 22,0 |
| B010 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| B011 | 5,0 | 3,0 | 3,0 | 4,0 | 3,0 | 5,0 | 5,0 | 28,0 |
| B012 | 5,0 | 3,0 | 2,0 | 5,0 | 3,0 | 5,0 | 4,0 | 27,0 |
| B013 | 3,0 | 5,0 | 3,0 | 5,0 | 5,0 | 3,0 | 2,0 | 26,0 |
| B014 | 5,0 | 5,0 | 3,0 | 5,0 | 2,0 | 5,0 | 2,0 | 27,0 |
| B015 | 1,0 | 2,0 | 2,0 | 4,0 | 3,0 | 5,0 | 3,0 | 20,0 |
| B016 | 4,0 | 5,0 | 3,0 | 5,0 | 3,0 | 5,0 | 2,0 | 27,0 |
| B017 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 4,0 | 23,0 |
| B018 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 4,0 | 23,0 |
| B019 | 5,0 | 2,0 | 3,0 | 4,0 | 4,0 | 5,0 | 3,0 | 26,0 |
| B020 | 5,0 | 3,0 | 3,0 | 5,0 | 3,0 | 5,0 | 2,0 | 26,0 |
| B021 | 1,0 | 5,0 | 2,0 | 5,0 | 3,0 | 5,0 | 5,0 | 26,0 |
| B022 | 5,0 | 3,0 | 3,0 | 4,0 | 0,0 | 4,0 | 3,0 | 22,0 |
| B023 | 2,0 | 5,0 | 3,0 | 4,0 | 1,0 | 5,0 | 4,0 | 24,0 |
| B024 | 5,0 | 3,0 | 5,0 | 1,0 | 3,0 | 4,0 | 5,0 | 26,0 |
| B025 | 5,0 | 2,0 | 3,0 | 3,0 | 3,0 | 5,0 | 5,0 | 26,0 |
| B026 | 3,0 | 5,0 | 3,0 | 5,0 | 3,0 | 5,0 | 1,0 | 25,0 |
| B027 | 2,0 | 3,0 | 2,0 | 3,0 | 5,0 | 5,0 | 1,0 | 21,0 |
| B028 | 3,0 | 3,0 | 2,0 | 4,0 | 2,0 | 5,0 | 2,0 | 21,0 |
| B029 | 5,0 | 5,0 | 5,0 | 5,0 | 2,0 | 1,0 | 2,0 | 25,0 |
| B030 | 2,0 | 2,0 | 4,0 | 1,0 | 5,0 | 5,0 | 5,0 | 24,0 |
| B031 | 3,0 | 3,0 | 1,0 | 3,0 | 1,0 | 5,0 | 5,0 | 21,0 |
| B032 | 5,0 | 3,0 | 3,0 | 3,0 | 0,0 | 5,0 | 5,0 | 24,0 |
| B033 | 4,0 | 2,0 | 3,0 | 5,0 | 3,0 | 5,0 | 5,0 | 27,0 |
| B034 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 4,0 | 23,0 |
| B035 | 3,0 | 3,0 | 3,0 | 5,0 | 3,0 | 2,0 | 5,0 | 24,0 |
| B036 | 2,0 | 5,0 | 3,0 | 5,0 | 3,0 | 5,0 | 1,0 | 24,0 |
| B037 | 5,0 | 5,0 | 3,0 | 1,0 | 3,0 | 5,0 | 2,0 | 24,0 |
| B038 | 3,0 | 4,0 | 3,0 | 2,0 | 1,0 | 5,0 | 5,0 | 23,0 |

| | | | | | | | | |
|------|-----|-----|-----|-----|-----|-----|-----|------|
| B039 | 2,0 | 5,0 | 1,0 | 5,0 | 1,0 | 4,0 | 5,0 | 23,0 |
| B040 | 2,0 | 5,0 | 3,0 | 4,0 | 2,0 | 3,0 | 4,0 | 23,0 |
| B041 | 5,0 | 5,0 | 2,0 | 2,0 | 3,0 | 3,0 | 3,0 | 23,0 |
| B042 | 3,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 5,0 | 23,0 |
| B043 | 2,0 | 3,0 | 3,0 | 5,0 | 3,0 | 5,0 | 2,0 | 23,0 |
| B044 | 3,0 | 2,0 | 3,0 | 2,0 | 3,0 | 5,0 | 5,0 | 23,0 |
| B045 | 5,0 | 5,0 | 2,0 | 4,0 | 1,0 | 5,0 | 1,0 | 23,0 |
| B046 | 5,0 | 4,0 | 3,0 | 2,0 | 2,0 | 1,0 | 5,0 | 22,0 |
| B047 | 5,0 | 5,0 | 2,0 | 5,0 | 3,0 | 5,0 | 4,0 | 29,0 |
| B048 | 1,0 | 2,0 | 3,0 | 4,0 | 4,0 | 3,0 | 5,0 | 22,0 |
| B049 | 3,0 | 5,0 | 2,0 | 5,0 | 3,0 | 5,0 | 5,0 | 28,0 |
| B050 | 5,0 | 1,0 | 3,0 | 4,0 | 3,0 | 2,0 | 3,0 | 21,0 |
| B051 | 1,0 | 2,0 | 2,0 | 5,0 | 2,0 | 5,0 | 5,0 | 22,0 |
| B052 | 3,0 | 5,0 | 4,0 | 3,0 | 1,0 | 4,0 | 2,0 | 22,0 |
| B053 | 4,0 | 1,0 | 3,0 | 5,0 | 1,0 | 3,0 | 5,0 | 22,0 |
| B054 | 3,0 | 5,0 | 3,0 | 1,0 | 3,0 | 2,0 | 4,0 | 21,0 |
| B055 | 1,0 | 5,0 | 2,0 | 5,0 | 2,0 | 2,0 | 5,0 | 22,0 |
| B056 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 4,0 | 23,0 |
| B057 | 3,0 | 2,0 | 2,0 | 5,0 | 3,0 | 5,0 | 5,0 | 25,0 |
| B058 | 5,0 | 3,0 | 2,0 | 5,0 | 3,0 | 5,0 | 4,0 | 27,0 |
| B059 | 3,0 | 5,0 | 3,0 | 2,0 | 2,0 | 5,0 | 1,0 | 21,0 |
| B060 | 1,0 | 5,0 | 2,0 | 5,0 | 0,0 | 5,0 | 3,0 | 21,0 |
| B061 | 5,0 | 1,0 | 3,0 | 4,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| B062 | 1,0 | 2,0 | 2,0 | 5,0 | 2,0 | 4,0 | 5,0 | 21,0 |
| B063 | 4,0 | 3,0 | 3,0 | 1,0 | 0,0 | 5,0 | 4,0 | 20,0 |
| B064 | 5,0 | 3,0 | 2,0 | 5,0 | 3,0 | 5,0 | 4,0 | 27,0 |
| B065 | 5,0 | 5,0 | 3,0 | 5,0 | 3,0 | 5,0 | 5,0 | 31,0 |
| B066 | 5,0 | 3,0 | 3,0 | 3,0 | 1,0 | 5,0 | 3,0 | 23,0 |
| B067 | 5,0 | 3,0 | 2,0 | 4,0 | 1,0 | 5,0 | 3,0 | 23,0 |
| B068 | 5,0 | 3,0 | 2,0 | 4,0 | 1,0 | 5,0 | 3,0 | 23,0 |
| B069 | 5,0 | 3,0 | 3,0 | 4,0 | 3,0 | 0,0 | 4,0 | 22,0 |
| B070 | 5,0 | 3,0 | 3,0 | 2,0 | 1,0 | 5,0 | 3,0 | 22,0 |
| B071 | 5,0 | 3,0 | 0,0 | 4,0 | 1,0 | 5,0 | 4,0 | 22,0 |
| B072 | 5,0 | 5,0 | 3,0 | 5,0 | 3,0 | 5,0 | 5,0 | 31,0 |
| B073 | 5,0 | 5,0 | 5,0 | 1,0 | 1,0 | 1,0 | 2,0 | 20,0 |
| B074 | 3,0 | 5,0 | 5,0 | 5,0 | 3,0 | 5,0 | 5,0 | 31,0 |
| B075 | 5,0 | 3,0 | 3,0 | 4,0 | 0,0 | 5,0 | 3,0 | 23,0 |
| B076 | 2,0 | 2,0 | 3,0 | 5,0 | 3,0 | 3,0 | 3,0 | 21,0 |
| B077 | 3,0 | 2,0 | 2,0 | 3,0 | 2,0 | 5,0 | 5,0 | 22,0 |
| B078 | 5,0 | 3,0 | 3,0 | 5,0 | 3,0 | 5,0 | 4,0 | 28,0 |
| B079 | 5,0 | 5,0 | 2,0 | 2,0 | 3,0 | 5,0 | 5,0 | 27,0 |

| | | | | | | | | |
|------|-----|-----|-----|-----|-----|-----|-----|------|
| B080 | 5,0 | 5,0 | 2,0 | 2,0 | 3,0 | 5,0 | 5,0 | 27,0 |
| B081 | 5,0 | 3,0 | 2,0 | 5,0 | 3,0 | 5,0 | 4,0 | 27,0 |
| B082 | 3,0 | 3,0 | 5,0 | 5,0 | 2,0 | 5,0 | 5,0 | 28,0 |
| B083 | 5,0 | 3,0 | 2,0 | 5,0 | 3,0 | 5,0 | 4,0 | 27,0 |
| B084 | 3,0 | 2,0 | 4,0 | 2,0 | 5,0 | 1,0 | 3,0 | 20,0 |
| B085 | 5,0 | 3,0 | 2,0 | 5,0 | 3,0 | 5,0 | 4,0 | 27,0 |
| B086 | 5,0 | 3,0 | 2,0 | 5,0 | 3,0 | 5,0 | 4,0 | 27,0 |
| B087 | 4,0 | 5,0 | 2,0 | 5,0 | 3,0 | 5,0 | 5,0 | 29,0 |
| B088 | 2,0 | 5,0 | 0,0 | 5,0 | 3,0 | 5,0 | 5,0 | 25,0 |
| B089 | 5,0 | 2,0 | 2,0 | 5,0 | 3,0 | 5,0 | 4,0 | 26,0 |
| B090 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| B091 | 5,0 | 2,0 | 2,0 | 5,0 | 3,0 | 5,0 | 4,0 | 26,0 |
| B092 | 5,0 | 2,0 | 2,0 | 5,0 | 3,0 | 5,0 | 4,0 | 26,0 |
| B093 | 5,0 | 3,0 | 2,0 | 4,0 | 3,0 | 5,0 | 4,0 | 26,0 |
| B094 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 5,0 | 25,0 |
| B095 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 5,0 | 25,0 |
| B096 | 4,0 | 5,0 | 3,0 | 5,0 | 3,0 | 5,0 | 5,0 | 30,0 |
| B097 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 5,0 | 25,0 |
| B098 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 5,0 | 25,0 |
| B099 | 5,0 | 3,0 | 2,0 | 2,0 | 3,0 | 5,0 | 5,0 | 25,0 |
| B100 | 5,0 | 3,0 | 2,0 | 4,0 | 1,0 | 5,0 | 5,0 | 25,0 |
| B101 | 3,0 | 5,0 | 3,0 | 5,0 | 3,0 | 5,0 | 3,0 | 27,0 |
| B102 | 5,0 | 2,0 | 2,0 | 2,0 | 3,0 | 5,0 | 5,0 | 24,0 |
| B103 | 5,0 | 5,0 | 5,0 | 3,0 | 3,0 | 5,0 | 5,0 | 31,0 |
| B104 | 2,0 | 3,0 | 3,0 | 5,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| B105 | 2,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 3,0 | 30,0 |
| B106 | 5,0 | 3,0 | 2,0 | 3,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| B107 | 5,0 | 3,0 | 3,0 | 4,0 | 1,0 | 5,0 | 4,0 | 25,0 |
| B108 | 5,0 | 3,0 | 1,0 | 4,0 | 1,0 | 5,0 | 5,0 | 24,0 |
| B109 | 5,0 | 2,0 | 2,0 | 5,0 | 3,0 | 5,0 | 4,0 | 26,0 |

| Step Labels | 1 | 2 | 3 | 4 | 5 | | | |
|----------------|-------|-------|------|------|------|------------------|----|---------|
| Thresholds | | -1.22 | -.71 | .83 | 1.23 | | | |
| Error | | .44 | .41 | .37 | .38 | | | |
| | | | | | | | | |
| | | | | | | | | |
| Item 3: item 3 | | | | | | Infit MNSQ = .88 | | |
| | | | | | | Disc = .62 | | |
| Categories | 0 | 1 | 2 | 3 | 4 | 5 | 9 | missing |
| Count | 3 | 5 | 55 | 29 | 6 | 11 | 0 | 0 |
| Percent (%) | 2.8 | 4.6 | 50.5 | 26.6 | 5.5 | 10.1 | .0 | |
| Pt-Biserial | -.23 | -.13 | -.46 | .32 | .06 | .46 | NA | |
| p-value | .008 | .089 | .000 | .000 | .277 | .000 | NA | |
| Mean Ability | -1.93 | -.51 | -.36 | .56 | .33 | 1.31 | NA | NA |
| Step Labels | 1 | 2 | 3 | 4 | 5 | | | |
| Thresholds | -2.72 | -2.07 | .41 | 1.24 | 1.56 | | | |
| Error | .69 | .63 | .38 | .42 | .43 | | | |
| | | | | | | | | |
| ===== | | | | | | | | |

*****Output Continues*****



QUEST: The Interactive Test Analysis System

Item Analysis Results for Observed Responses
 all on all (N = 109 L = 7 Probability Level= .50)

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Item 4: item 4 Infit MNSQ = .98
 Disc = .73

| Categories | 0 | 1 | 2 | 3 | 4 | 5 | 9 | missing |
|--------------|------|-------|------|------|------|------|----|---------|
| Count | 2 | 31 | 19 | 16 | 23 | 18 | 0 | 0 |
| Percent (%) | 1.8 | 28.4 | 17.4 | 14.7 | 21.1 | 16.5 | .0 | |
| Pt-Biserial | -.03 | -.77 | .11 | .18 | .15 | .50 | NA | |
| p-value | .391 | .000 | .135 | .032 | .057 | .000 | NA | |
| Mean Ability | .03 | -1.26 | .35 | .51 | .40 | 1.08 | NA | NA |
| Step Labels | | 1 | 2 | 3 | 4 | 5 | | |
| Thresholds | | -3.63 | -.49 | .12 | .54 | 1.35 | | |
| Error | | .81 | .38 | .35 | .35 | .37 | | |

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Item 5: item 5 Infit MNSQ = 1.25
 Disc = .67

| Categories | 0 | 1 | 2 | 3 | 4 | 5 | 9 | missing |
|--------------|-------|------|------|------|------|------|----|---------|
| Count | 28 | 20 | 13 | 21 | 15 | 12 | 0 | 0 |
| Percent (%) | 25.7 | 18.3 | 11.9 | 19.3 | 13.8 | 11.0 | .0 | |
| Pt-Biserial | -.59 | -.01 | -.13 | .23 | .32 | .33 | NA | |
| p-value | .000 | .464 | .085 | .009 | .000 | .000 | NA | |
| Mean Ability | -1.03 | .15 | -.29 | .52 | .82 | .91 | NA | NA |
| Step Labels | | 1 | 2 | 3 | 4 | 5 | | |

.....

QUEST: The Interactive Test Analysis System

Item Analysis Results for Observed Responses
all on all (N = 109 L = 7 Probability Level= .50)

.....

| | | | | | | | | | |
|--------------|-----------|-------|------|------|------|------|----|---------|-------------|
| Item | 7: item 7 | | | | | | | Infit | MNSQ = 1.20 |
| | | | | | | | | Disc | = .72 |
| Categories | 0 | 1 | 2 | 3 | 4 | 5 | 9 | missing | |
| Count | 11 | 23 | 5 | 24 | 16 | 30 | 0 | 0 | |
| Percent (%) | 10.1 | 21.1 | 4.6 | 22.0 | 14.7 | 27.5 | .0 | | |
| Pt-Biserial | -.32 | -.59 | .10 | .12 | .10 | .51 | NA | | |
| p-value | .000 | .000 | .141 | .101 | .143 | .000 | NA | | |
| Mean Ability | -1.02 | -1.15 | .53 | .34 | .36 | .85 | NA | NA | |
| Step Labels | | 1 | 2 | 3 | 4 | 5 | | | |
| Thresholds | | -1.81 | -.38 | -.20 | .38 | .89 | | | |
| Error | | .47 | .38 | .37 | .36 | .34 | | | |

.....

Mean test score 15.94
Standard deviation 7.27
Internal Consistency .84

The individual item statistics are calculated
using all available data.

The overall mean, standard deviation and internal
consistency indices assume that missing responses
are incorrect. They should only be considered useful when
there is a limited amount of missing data.

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Lampiran 9. Hasil Analisis Skor Pretest Menggunakan Quest

QUEST: The Interactive Test Analysis System

Case Estimates In input Order

all on all (N = 118 L = 7 Probability Level= .50)

| NAME | SCORE MAXSCR | | ESTIMATE | ERROR | INFIT MNSQ | OUTFT MNSQ | INFIT t | OUTFT t |
|---------|--------------|----|----------|-------|---------------|---------------|------------|------------|
| | | | | | | | | |
| 1 A001 | 10 | 33 | -.22 | .38 | .30 | .21 | -1.04 | -.91 |
| 2 A002 | 6 | 33 | -1.25 | .66 | .20 | .19 | -1.04 | -.46 |
| 3 A003 | 3 | 33 | -3.29 | 1.00 | .36 | .21 | -.87 | .04 |
| 4 A004 | 8 | 33 | -.59 | .49 | .73 | .52 | .02 | -.07 |
| 5 A005 | 5 | 33 | -1.75 | .76 | 1.14 | 1.39 | .43 | .73 |
| 6 A006 | 4 | 33 | -2.41 | .88 | .35 | .22 | -.80 | -.23 |
| 7 A007 | 8 | 33 | -.59 | .49 | 1.11 | .87 | .44 | .30 |
| 8 A008 | 9 | 33 | -.38 | .43 | .60 | .48 | -.23 | -.23 |
| 9 A009 | 8 | 33 | -.59 | .49 | .28 | .23 | -.72 | -.54 |
| 10 A010 | 7 | 33 | -.87 | .57 | .26 | .20 | -.73 | -.51 |
| 11 A011 | 5 | 33 | -1.75 | .76 | .16 | .14 | -1.50 | -.44 |
| 12 A012 | 5 | 33 | -1.75 | .76 | .16 | .14 | -1.50 | -.44 |
| 13 A013 | 7 | 33 | -.87 | .57 | .41 | .37 | -.41 | -.21 |
| 14 A014 | 6 | 33 | -1.25 | .66 | .20 | .19 | -1.04 | -.46 |
| 15 A015 | 5 | 33 | -1.75 | .76 | .77 | .47 | -.05 | .07 |
| 16 A016 | 5 | 33 | -1.75 | .76 | .77 | .47 | -.05 | .07 |
| 17 A017 | 5 | 33 | -1.75 | .76 | .16 | .14 | -1.50 | -.44 |
| 18 A018 | 4 | 33 | -2.41 | .88 | .35 | .22 | -.80 | -.23 |
| 19 A019 | 5 | 33 | -1.75 | .76 | 1.14 | 1.39 | .43 | .73 |
| 20 A020 | 5 | 33 | -1.75 | .76 | .77 | .47 | -.05 | .07 |
| 21 A021 | 7 | 33 | -.87 | .57 | .41 | .37 | -.41 | -.21 |
| 22 A022 | 6 | 33 | -1.25 | .66 | .20 | .19 | -1.04 | -.46 |
| 23 A023 | 7 | 33 | -.87 | .57 | 2.18 | 1.52 | 1.21 | .78 |
| 24 A024 | 6 | 33 | -1.25 | .66 | .20 | .19 | -1.04 | -.46 |
| 25 A025 | 7 | 33 | -.87 | .57 | 2.18 | 1.52 | 1.21 | .78 |
| 26 A026 | 4 | 33 | -2.41 | .88 | .35 | .22 | -.80 | -.23 |
| 27 A027 | 4 | 33 | -2.41 | .88 | .71 | .40 | -.11 | .03 |
| 28 A028 | 10 | 33 | -.22 | .38 | .67 | .74 | -.23 | .04 |



| | | | | | | | | | |
|----|------|----|----|-------|------|------|------|-------|------|
| 29 | A029 | 7 | 33 | -.87 | .57 | 2.10 | 1.79 | 1.17 | .93 |
| 30 | A030 | 8 | 33 | -.59 | .49 | .52 | .69 | -.27 | .11 |
| 31 | A031 | 15 | 33 | .31 | .29 | 1.56 | 1.45 | 1.15 | .83 |
| 32 | A032 | 10 | 33 | -.22 | .38 | 1.87 | 2.21 | 1.16 | 1.25 |
| 33 | A033 | 16 | 33 | .39 | .28 | 2.16 | 2.35 | 2.08 | 1.82 |
| 34 | A034 | 8 | 33 | -.59 | .49 | .28 | .23 | -.72 | -.54 |
| 35 | A035 | 5 | 33 | -1.75 | .76 | .77 | .47 | -.05 | .07 |
| 36 | A036 | 10 | 33 | -.22 | .38 | 2.81 | 3.28 | 1.86 | 1.81 |
| 37 | A037 | 8 | 33 | -.59 | .49 | 4.36 | 3.48 | 2.25 | 1.67 |
| 38 | A038 | 18 | 33 | .54 | .28 | 1.34 | 1.17 | .88 | .47 |
| 39 | A039 | 8 | 33 | -.59 | .49 | .77 | .60 | .08 | .02 |
| 40 | A040 | 17 | 33 | .47 | .28 | 1.35 | 1.48 | .87 | .90 |
| 41 | A041 | 10 | 33 | -.22 | .38 | .67 | .74 | -.23 | .04 |
| 42 | A042 | 9 | 33 | -.38 | .43 | 2.40 | 1.81 | 1.44 | .96 |
| 43 | A043 | 6 | 33 | -1.25 | .66 | 3.39 | 6.09 | 1.94 | 2.25 |
| 44 | A044 | 3 | 33 | -3.29 | 1.00 | .36 | .21 | -.87 | .04 |
| 45 | A045 | 2 | 33 | -4.38 | 1.08 | .29 | .18 | -1.21 | .69 |
| 46 | A046 | 7 | 33 | -.87 | .57 | .43 | .36 | -.38 | -.23 |
| 47 | A047 | 7 | 33 | -.87 | .57 | .43 | .36 | -.38 | -.23 |
| 48 | A048 | 8 | 33 | -.59 | .49 | .17 | .15 | -1.04 | -.76 |
| 49 | A049 | 5 | 33 | -1.75 | .76 | .77 | .47 | -.05 | .07 |
| 50 | A050 | 14 | 33 | .22 | .30 | 1.47 | 1.55 | .98 | .93 |
| 51 | A051 | 6 | 33 | -1.25 | .66 | .20 | .19 | -1.04 | -.46 |
| 52 | A052 | 17 | 33 | .47 | .28 | 1.56 | 1.83 | 1.25 | 1.32 |
| 53 | A053 | 15 | 33 | .31 | .29 | .36 | .45 | -1.65 | -.87 |
| 54 | A054 | 17 | 33 | .47 | .28 | .82 | 1.49 | -.29 | .92 |
| 55 | A055 | 13 | 33 | .13 | .31 | 1.13 | .93 | .41 | .14 |
| 56 | A056 | 10 | 33 | -.22 | .38 | 1.92 | 1.19 | 1.20 | .51 |

*****Output Continues*****



QUEST: The Interactive Test Analysis System

Case Estimates In input Order

all on all (N = 118 L = 7 Probability Level= .50)

| NAME | SCORE | MAXSCR | ESTIMATE | ERROR | INFIT MNSQ | OUTFT MNSQ | INFT t | OUTFT t |
|---------|-------|--------|----------|-------|---------------|---------------|-----------|------------|
| 57 A057 | 12 | 33 | .03 | .33 | .26 | .30 | -1.63 | -.99 |
| 58 A058 | 15 | 33 | .31 | .29 | 1.06 | .94 | .27 | .12 |
| 59 A059 | 15 | 33 | .31 | .29 | 1.06 | .94 | .27 | .12 |
| 60 A060 | 17 | 33 | .47 | .28 | 1.35 | 1.36 | .87 | .75 |
| 61 A061 | 15 | 33 | .31 | .29 | .64 | .81 | -.71 | -.11 |
| 62 A062 | 16 | 33 | .39 | .28 | 1.29 | 1.05 | .74 | .28 |
| 63 A063 | 11 | 33 | -.09 | .35 | .49 | .43 | -.74 | -.54 |
| 64 A064 | 11 | 33 | -.09 | .35 | 1.34 | .78 | .68 | .02 |
| 65 A065 | 11 | 33 | -.09 | .35 | 1.34 | .78 | .68 | .02 |
| 66 A066 | 18 | 33 | .54 | .28 | .24 | .28 | -2.67 | -1.55 |
| 67 A067 | 11 | 33 | -.09 | .35 | .49 | .43 | -.74 | -.54 |
| 68 A068 | 11 | 33 | -.09 | .35 | .49 | .43 | -.74 | -.54 |
| 69 A069 | 11 | 33 | -.09 | .35 | 1.34 | .78 | .68 | .02 |
| 70 A070 | 11 | 33 | -.09 | .35 | .49 | .43 | -.74 | -.54 |
| 71 A071 | 18 | 33 | .54 | .28 | .62 | .61 | -.94 | -.57 |
| 72 A072 | 11 | 33 | -.09 | .35 | 1.34 | .78 | .68 | .02 |
| 73 A073 | 18 | 33 | .54 | .28 | .24 | .28 | -2.67 | -1.55 |
| 74 A074 | 10 | 33 | -.22 | .38 | 1.96 | 1.14 | 1.24 | .46 |
| 75 A075 | 11 | 33 | -.09 | .35 | .49 | .43 | -.74 | -.54 |
| 76 A076 | 16 | 33 | .39 | .28 | 1.29 | 1.05 | .74 | .28 |
| 77 A077 | 11 | 33 | -.09 | .35 | .49 | .43 | -.74 | -.54 |
| 78 A078 | 17 | 33 | .47 | .28 | 1.90 | 1.80 | 1.80 | 1.29 |
| 79 A079 | 5 | 33 | -1.75 | .76 | 1.48 | .83 | .79 | .39 |
| 80 A080 | 9 | 33 | -.38 | .43 | 1.23 | .93 | .53 | .30 |
| 81 A081 | 6 | 33 | -1.25 | .66 | .51 | .31 | -.34 | -.23 |
| 82 A082 | 8 | 33 | -.59 | .49 | .51 | .81 | -.29 | .24 |
| 83 A083 | 9 | 33 | -.38 | .43 | .41 | .31 | -.57 | -.51 |
| 84 A084 | 8 | 33 | -.59 | .49 | .51 | .81 | -.29 | .24 |
| 85 A085 | 5 | 33 | -1.75 | .76 | .77 | .47 | -.05 | .07 |
| 86 A086 | 7 | 33 | -.87 | .57 | .26 | .20 | -.73 | -.51 |



| | | | | | | | | |
|----------|----|----|-------|-----|------|------|-------|------|
| 87 A087 | 6 | 33 | -1.25 | .66 | .51 | .31 | -.34 | -.23 |
| 88 A088 | 8 | 33 | -.59 | .49 | .69 | .64 | -.02 | .07 |
| 89 A089 | 11 | 33 | -.09 | .35 | .49 | .43 | -.74 | -.54 |
| 90 A090 | 9 | 33 | -.38 | .43 | .41 | .31 | -.57 | -.51 |
| 91 A091 | 10 | 33 | -.22 | .38 | .30 | .21 | -1.04 | -.91 |
| 92 A092 | 10 | 33 | -.22 | .38 | .79 | .93 | -.04 | .25 |
| 93 A093 | 9 | 33 | -.38 | .43 | .66 | .62 | -.15 | -.04 |
| 94 A094 | 10 | 33 | -.22 | .38 | .81 | .63 | -.01 | -.11 |
| 95 A095 | 5 | 33 | -1.75 | .76 | .16 | .14 | -1.50 | -.44 |
| 96 A096 | 7 | 33 | -.87 | .57 | .26 | .20 | -.73 | -.51 |
| 97 A097 | 15 | 33 | .31 | .29 | .64 | .81 | -.71 | -.11 |
| 98 A098 | 5 | 33 | -1.75 | .76 | .77 | .47 | -.05 | .07 |
| 99 A099 | 8 | 33 | -.59 | .49 | .63 | .77 | -.10 | .20 |
| 100 A100 | 11 | 33 | -.09 | .35 | .49 | .43 | -.74 | -.54 |
| 101 A101 | 4 | 33 | -2.41 | .88 | 3.30 | 1.77 | 2.05 | .93 |
| 102 A102 | 7 | 33 | -.87 | .57 | .26 | .20 | -.73 | -.51 |
| 103 A103 | 4 | 33 | -2.41 | .88 | .71 | .40 | -.11 | .03 |
| 104 A104 | 11 | 33 | -.09 | .35 | 1.52 | 1.18 | .90 | .49 |
| 105 A105 | 7 | 33 | -.87 | .57 | .26 | .20 | -.73 | -.51 |
| 106 A106 | 7 | 33 | -.87 | .57 | .26 | .20 | -.73 | -.51 |
| 107 A107 | 10 | 33 | -.22 | .38 | .81 | .63 | -.01 | -.11 |
| 108 A108 | 10 | 33 | -.22 | .38 | 1.96 | 1.14 | 1.24 | .46 |
| 109 A109 | 5 | 33 | -1.75 | .76 | .77 | .47 | -.05 | .07 |
| 110 A110 | 12 | 33 | .03 | .33 | 1.32 | 1.50 | .68 | .81 |
| 111 A111 | 11 | 33 | -.09 | .35 | .45 | .55 | -.82 | -.33 |
| 112 A112 | 11 | 33 | -.09 | .35 | .30 | .53 | -1.27 | -.36 |

*****Output Continues*****



QUEST: The Interactive Test Analysis System

Case Estimates In input Order

all on all (N = 118 L = 7 Probability Level= .50)

| NAME | SCORE MAXSCR | ESTIMATE | ERROR | INFIT | OUTFT | INFT | OUTFT |
|----------|--------------|----------|-------|-------|-------|------|-------|
| | | | | MNSQ | MNSQ | t | t |
| 113 A113 | 11 33 | -.09 | .35 | 3.02 | 4.06 | 2.22 | 2.32 |
| 114 A114 | 11 33 | -.09 | .35 | .68 | .84 | -.31 | .11 |
| 115 A115 | 11 33 | -.09 | .35 | .49 | .43 | -.74 | -.54 |
| 116 A116 | 11 33 | -.09 | .35 | .84 | 1.00 | -.03 | .29 |
| 117 A117 | 10 33 | -.22 | .38 | 1.98 | 2.74 | 1.25 | 1.55 |
| 118 A118 | 5 33 | -1.75 | .76 | 2.61 | 2.85 | 1.69 | 1.33 |
| Mean | | -.68 | | .92 | .84 | -.08 | .08 |
| SD | | .93 | | .78 | .88 | .99 | .70 |

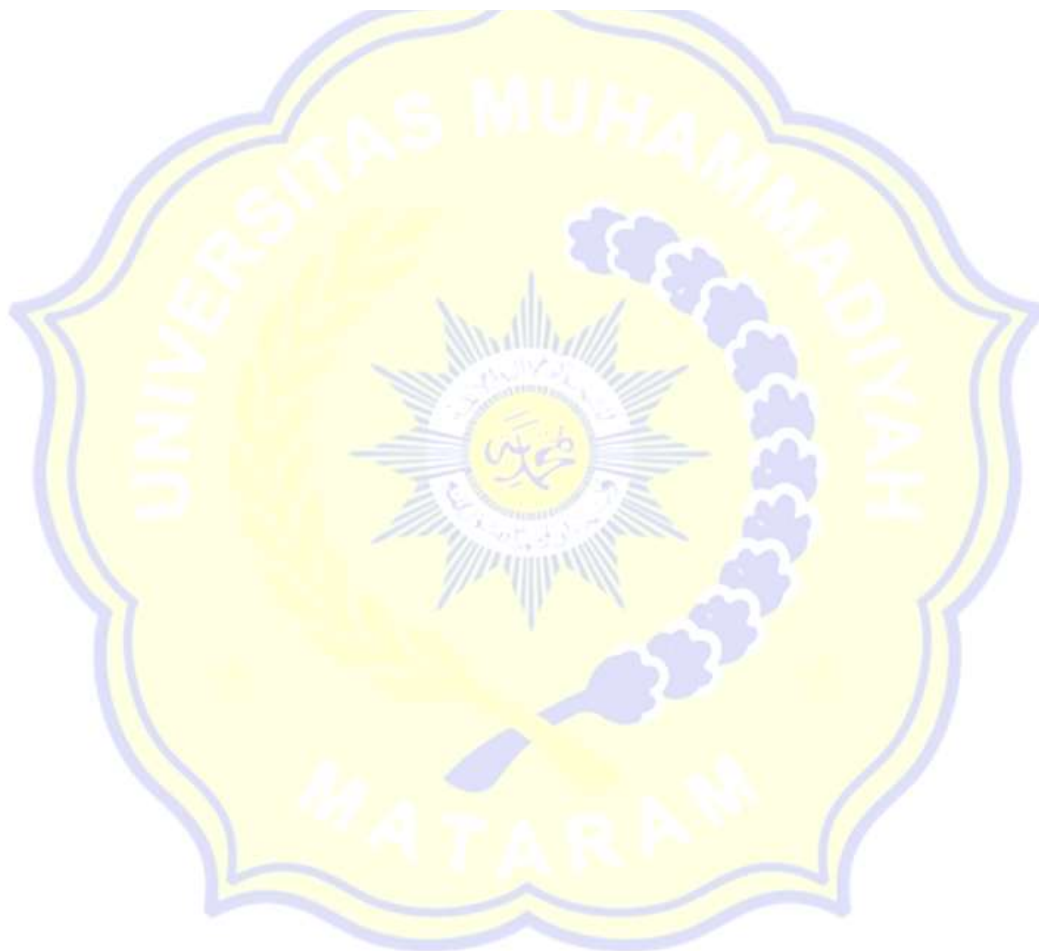


(unit= 1.00 , origin= .00)

| Score | Estimate (logits) | Error | Transformed Estimate | Transformed Error |
|-----------|----------------------|-------|-------------------------|----------------------|
| (max= 33) | | | | |
| 32 | 3.11 | .99 | 3.11 | .99 |
| 31 | 2.43 | .70 | 2.43 | .70 |
| 30 | 2.03 | .57 | 2.03 | .57 |
| 29 | 1.75 | .49 | 1.75 | .49 |
| 28 | 1.55 | .43 | 1.55 | .43 |
| 27 | 1.38 | .39 | 1.38 | .39 |
| 26 | 1.24 | .35 | 1.24 | .35 |
| 25 | 1.13 | .33 | 1.13 | .33 |
| 24 | 1.03 | .31 | 1.03 | .31 |
| 23 | .93 | .30 | .93 | .30 |
| 22 | .85 | .29 | .85 | .29 |
| 21 | .77 | .28 | .77 | .28 |
| 20 | .69 | .28 | .69 | .28 |
| 19 | .62 | .27 | .62 | .27 |
| 18 | .54 | .27 | .54 | .27 |
| 17 | .46 | .28 | .46 | .28 |
| 16 | .39 | .28 | .39 | .28 |
| 15 | .31 | .29 | .31 | .29 |
| 14 | .22 | .30 | .22 | .30 |
| 13 | .13 | .31 | .13 | .31 |
| 12 | .03 | .33 | .03 | .33 |
| 11 | -.09 | .35 | -.09 | .35 |



| | | | | |
|----|-------|------|-------|------|
| 10 | -.22 | .38 | -.22 | .38 |
| 9 | -.38 | .43 | -.38 | .43 |
| 8 | -.59 | .49 | -.59 | .49 |
| 7 | -.87 | .57 | -.87 | .57 |
| 6 | -1.24 | .66 | -1.24 | .66 |
| 5 | -1.75 | .76 | -1.75 | .76 |
| 4 | -2.41 | .88 | -2.41 | .88 |
| 3 | -3.29 | 1.00 | -3.29 | 1.00 |
| 2 | -4.38 | 1.08 | -4.38 | 1.08 |
| 1 | -5.68 | 1.24 | -5.68 | 1.24 |



QUEST: The Interactive Test Analysis System

Case Estimates In input Order

all on all (N = 118 L = 7 Probability Level= .50)

| NAME | SCORE | MAXSCR | ESTIMATE | ERROR | INFIT | OUTFIT | INFT | OUTFT |
|---------|-------|--------|----------|-------|-------|--------|-------|-------|
| | | | | | MNSQ | MNSQ | t | t |
| 1 G015 | 28 | 32 | 1.46 | .46 | .23 | .18 | -1.46 | -.30 |
| 2 G022 | 28 | 32 | 1.46 | .46 | .23 | .18 | -1.46 | -.30 |
| 3 G003 | 28 | 32 | 1.46 | .46 | 1.28 | 1.40 | .60 | .75 |
| 4 G034 | 28 | 32 | 1.46 | .46 | 1.43 | 2.85 | .78 | 1.32 |
| 5 G005 | 27 | 32 | 1.27 | .43 | 3.53 | 5.21 | 2.45 | 2.06 |
| 6 G006 | 27 | 32 | 1.27 | .43 | .31 | .47 | -1.13 | -.04 |
| 7 G007 | 26 | 32 | 1.09 | .40 | .53 | .50 | -.58 | -.12 |
| 8 G008 | 25 | 32 | .94 | .38 | .70 | .68 | -.25 | .00 |
| 9 G009 | 25 | 32 | .94 | .38 | .87 | .93 | .03 | .28 |
| 10 G010 | 25 | 32 | .94 | .38 | .44 | .38 | -.82 | -.44 |
| 11 G011 | 25 | 32 | .94 | .38 | .26 | .23 | -1.35 | -.78 |
| 12 G012 | 25 | 32 | .94 | .38 | 1.55 | 1.52 | .92 | .78 |
| 13 G023 | 24 | 32 | .81 | .36 | .70 | .59 | -.28 | -.22 |
| 14 G014 | 24 | 32 | .81 | .36 | 1.17 | 1.13 | .47 | .45 |
| 15 G001 | 24 | 32 | .81 | .36 | .92 | .88 | .09 | .18 |
| 16 G016 | 24 | 32 | .81 | .36 | 1.14 | 1.10 | .42 | .42 |
| 17 G117 | 24 | 32 | .81 | .36 | .67 | .69 | -.35 | -.07 |
| 18 G018 | 23 | 32 | .69 | .34 | 1.72 | 1.84 | 1.16 | 1.09 |
| 19 G019 | 23 | 32 | .69 | .34 | .87 | .81 | -.01 | .03 |
| 20 G020 | 23 | 32 | .69 | .34 | .88 | .83 | .01 | .07 |
| 21 G021 | 23 | 32 | .69 | .34 | 2.04 | 1.87 | 1.50 | 1.11 |
| 22 G002 | 23 | 32 | .69 | .34 | 1.25 | 1.45 | .58 | .75 |
| 23 G013 | 23 | 32 | .69 | .34 | 2.43 | 2.54 | 1.87 | 1.59 |
| 24 G024 | 23 | 32 | .69 | .34 | 2.15 | 2.18 | 1.61 | 1.35 |
| 25 G025 | 23 | 32 | .69 | .34 | .66 | .58 | -.42 | -.31 |
| 26 G026 | 22 | 32 | .57 | .33 | 1.76 | 1.62 | 1.25 | .94 |
| 27 G027 | 22 | 32 | .57 | .33 | .81 | .75 | -.16 | -.11 |
| 28 G028 | 22 | 32 | .57 | .33 | 1.96 | 2.31 | 1.48 | 1.52 |



| | | | | | | | | | | | | |
|----|------|--|----|----|--|-----|-----|--|------|------|-------|------|
| 29 | G029 | | 22 | 32 | | .57 | .33 | | 3.24 | 4.19 | 2.65 | 2.66 |
| 30 | G030 | | 21 | 32 | | .47 | .31 | | 2.60 | 2.62 | 2.23 | 1.84 |
| 31 | G031 | | 21 | 32 | | .47 | .31 | | 1.05 | 1.10 | .27 | .37 |
| 32 | G032 | | 21 | 32 | | .47 | .31 | | .87 | .89 | -.06 | .07 |
| 33 | G033 | | 21 | 32 | | .47 | .31 | | .98 | .94 | .15 | .15 |
| 34 | G004 | | 21 | 32 | | .47 | .31 | | 1.54 | 1.52 | 1.03 | .87 |
| 35 | G035 | | 21 | 32 | | .47 | .31 | | 1.25 | 1.27 | .61 | .59 |
| 36 | G036 | | 21 | 32 | | .47 | .31 | | 1.94 | 1.76 | 1.53 | 1.11 |
| 37 | G037 | | 21 | 32 | | .47 | .31 | | 1.61 | 1.44 | 1.12 | .78 |
| 38 | G038 | | 20 | 32 | | .38 | .30 | | .70 | .69 | -.48 | -.30 |
| 39 | G039 | | 20 | 32 | | .38 | .30 | | 1.41 | 1.57 | .87 | .94 |
| 40 | G040 | | 20 | 32 | | .38 | .30 | | .93 | .94 | .04 | .13 |
| 41 | G041 | | 20 | 32 | | .38 | .30 | | .99 | 1.00 | .15 | .22 |
| 42 | G042 | | 20 | 32 | | .38 | .30 | | .58 | .53 | -.77 | -.63 |
| 43 | G043 | | 20 | 32 | | .38 | .30 | | 1.03 | .90 | .23 | .08 |
| 44 | G044 | | 20 | 32 | | .38 | .30 | | .74 | .75 | -.37 | -.19 |
| 45 | G045 | | 20 | 32 | | .38 | .30 | | 1.37 | 1.34 | .81 | .68 |
| 46 | G046 | | 19 | 32 | | .28 | .30 | | 1.60 | 1.39 | 1.21 | .75 |
| 47 | G077 | | 19 | 32 | | .28 | .30 | | .43 | .43 | -1.34 | -.91 |
| 48 | G048 | | 19 | 32 | | .28 | .30 | | 1.59 | 1.52 | 1.19 | .91 |
| 49 | G049 | | 19 | 32 | | .28 | .30 | | 3.48 | 3.25 | 3.32 | 2.44 |
| 50 | G055 | | 19 | 32 | | .28 | .30 | | 1.96 | 1.75 | 1.71 | 1.16 |
| 51 | G051 | | 19 | 32 | | .28 | .30 | | 1.33 | 1.11 | .78 | .38 |
| 52 | G052 | | 19 | 32 | | .28 | .30 | | .95 | 1.42 | .06 | .79 |
| 53 | G053 | | 19 | 32 | | .28 | .30 | | 1.18 | 1.30 | .51 | .64 |
| 54 | G054 | | 18 | 32 | | .20 | .29 | | 1.33 | 1.45 | .79 | .84 |
| 55 | G050 | | 18 | 32 | | .20 | .29 | | 1.18 | 1.29 | .52 | .63 |
| 56 | G056 | | 18 | 32 | | .20 | .29 | | .87 | .90 | -.13 | .05 |

*****Output Continues*****

QUEST: The Interactive Test Analysis System

Case Estimates In input Order

all on all (N = 118 L = 7 Probability Level= .50)

| NAME | SCORE | MAXSCR | ESTIMATE | ERROR | INFIT MNSQ | OUTFT MNSQ | INFIT t | OUTFT t |
|---------|-------|--------|----------|-------|---------------|---------------|------------|------------|
| 57 G057 | 18 | 32 | .20 | .29 | 1.66 | 1.75 | 1.34 | 1.18 |
| 58 G058 | 18 | 32 | .20 | .29 | .35 | .30 | -1.76 | -1.37 |
| 59 G059 | 18 | 32 | .20 | .29 | 1.11 | 1.25 | .37 | .57 |
| 60 G060 | 18 | 32 | .20 | .29 | 1.63 | 1.70 | 1.31 | 1.12 |
| 61 G061 | 18 | 32 | .20 | .29 | .56 | .73 | -.99 | -.25 |
| 62 G062 | 18 | 32 | .20 | .29 | 1.21 | 1.03 | .57 | .26 |
| 63 G063 | 17 | 32 | .12 | .29 | .86 | .94 | -.19 | .12 |
| 64 G064 | 17 | 32 | .12 | .29 | 2.01 | 2.55 | 1.95 | 1.97 |
| 65 G065 | 17 | 32 | .12 | .29 | .88 | .80 | -.15 | -.14 |
| 66 G066 | 20 | 32 | .38 | .30 | .39 | .40 | -1.38 | -.94 |
| 67 G067 | 20 | 32 | .38 | .30 | .39 | .37 | -1.40 | -1.03 |
| 68 G068 | 20 | 32 | .38 | .30 | .39 | .37 | -1.40 | -1.03 |
| 69 G069 | 19 | 32 | .28 | .30 | 2.05 | 1.72 | 1.81 | 1.13 |
| 70 G070 | 19 | 32 | .28 | .30 | .52 | .51 | -1.02 | -.71 |
| 71 G071 | 19 | 32 | .28 | .30 | .90 | 1.57 | -.05 | .97 |
| 72 G072 | 19 | 32 | .28 | .30 | .65 | .73 | -.65 | -.25 |
| 73 G073 | 17 | 32 | .12 | .29 | 2.46 | 3.46 | 2.55 | 2.67 |
| 74 G074 | 20 | 32 | .38 | .30 | .33 | .33 | -1.60 | -1.16 |
| 75 G075 | 20 | 32 | .38 | .30 | .72 | .77 | -.42 | -.14 |
| 76 G076 | 20 | 32 | .38 | .30 | .33 | .33 | -1.60 | -1.16 |
| 77 G047 | 26 | 32 | 1.09 | .40 | .45 | .37 | -.75 | -.32 |
| 78 G078 | 25 | 32 | .94 | .38 | .28 | .25 | -1.26 | -.73 |
| 79 G079 | 24 | 32 | .81 | .36 | 1.09 | .92 | .35 | .22 |
| 80 G080 | 24 | 32 | .81 | .36 | 1.09 | .92 | .35 | .22 |
| 81 G081 | 24 | 32 | .81 | .36 | .34 | .31 | -1.17 | -.74 |
| 82 G082 | 24 | 32 | .81 | .36 | .34 | .31 | -1.17 | -.74 |
| 83 G083 | 24 | 32 | .81 | .36 | .34 | .31 | -1.17 | -.74 |
| 84 G084 | 24 | 32 | .81 | .36 | .34 | .31 | -1.17 | -.74 |
| 85 G085 | 24 | 32 | .81 | .36 | .34 | .31 | -1.17 | -.74 |
| 86 G086 | 24 | 32 | .81 | .36 | .34 | .31 | -1.17 | -.74 |

| | | | | | | | | | | | | |
|-----|------|--|----|----|--|-----|-----|--|------|-----|-------|-------|
| 87 | G087 | | 24 | 32 | | .81 | .36 | | .34 | .31 | -1.17 | -.74 |
| 88 | G088 | | 24 | 32 | | .81 | .36 | | .34 | .31 | -1.17 | -.74 |
| 89 | G089 | | 23 | 32 | | .69 | .34 | | .61 | .55 | -.52 | -.37 |
| 90 | G090 | | 23 | 32 | | .69 | .34 | | .61 | .55 | -.52 | -.37 |
| 91 | G091 | | 23 | 32 | | .69 | .34 | | .61 | .55 | -.52 | -.37 |
| 92 | G092 | | 23 | 32 | | .69 | .34 | | .61 | .55 | -.52 | -.37 |
| 93 | G093 | | 23 | 32 | | .69 | .34 | | .19 | .21 | -1.83 | -1.20 |
| 94 | G094 | | 22 | 32 | | .57 | .33 | | .68 | .60 | -.41 | -.37 |
| 95 | G095 | | 22 | 32 | | .57 | .33 | | .68 | .60 | -.41 | -.37 |
| 96 | G096 | | 22 | 32 | | .57 | .33 | | .94 | .84 | .08 | .03 |
| 97 | G097 | | 22 | 32 | | .57 | .33 | | .68 | .60 | -.41 | -.37 |
| 98 | G098 | | 22 | 32 | | .57 | .33 | | .68 | .60 | -.41 | -.37 |
| 99 | G099 | | 22 | 32 | | .57 | .33 | | .68 | .60 | -.41 | -.37 |
| 100 | G100 | | 22 | 32 | | .57 | .33 | | .48 | .49 | -.92 | -.59 |
| 101 | G107 | | 22 | 32 | | .57 | .33 | | .35 | .36 | -1.30 | -.88 |
| 102 | G102 | | 21 | 32 | | .47 | .31 | | .81 | .76 | -.17 | -.14 |
| 103 | G103 | | 21 | 32 | | .47 | .31 | | .74 | .68 | -.34 | -.27 |
| 104 | G104 | | 21 | 32 | | .47 | .31 | | 1.02 | .89 | .22 | .08 |
| 105 | G105 | | 21 | 32 | | .47 | .31 | | 1.02 | .89 | .22 | .08 |
| 106 | G106 | | 21 | 32 | | .47 | .31 | | .50 | .49 | -.95 | -.67 |
| 107 | G101 | | 21 | 32 | | .47 | .31 | | .50 | .49 | -.95 | -.67 |
| 108 | G108 | | 21 | 32 | | .47 | .31 | | .68 | .87 | -.47 | .05 |
| 109 | G109 | | 21 | 32 | | .47 | .31 | | .50 | .49 | -.95 | -.67 |
| 110 | G110 | | 21 | 32 | | .47 | .31 | | .50 | .49 | -.95 | -.67 |
| 111 | G111 | | 21 | 32 | | .47 | .31 | | .50 | .49 | -.95 | -.67 |
| 112 | G112 | | 20 | 32 | | .38 | .30 | | .52 | .46 | -.97 | -.78 |

*****Output Continues*****



QUEST: The Interactive Test Analysis System

Case Estimates In input Order

all on all (N = 118 L = 7 Probability Level= .50)

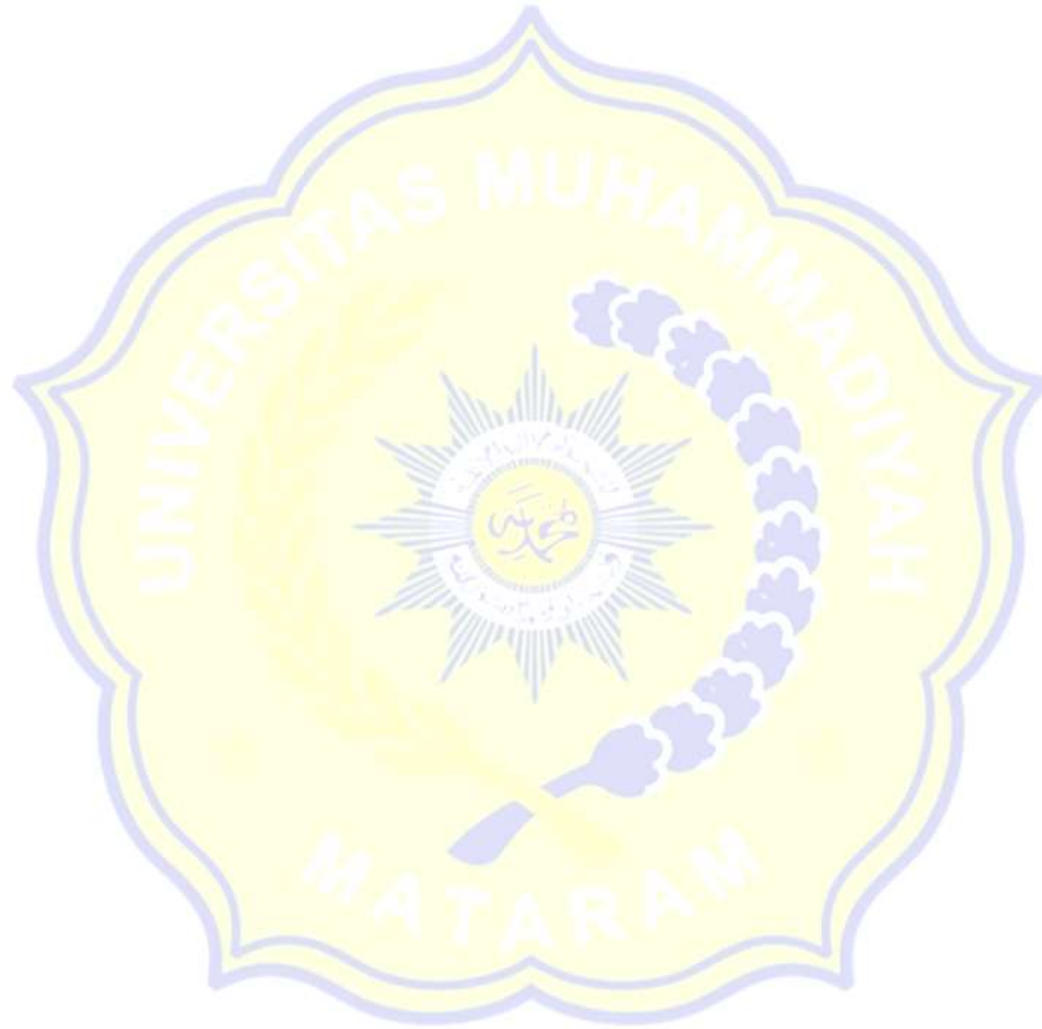
| NAME | SCORE | MAXSCR | ESTIMATE | ERROR | INFIT MNSQ | OUTFT MNSQ | INFT t | OUTFT t |
|----------|-------|--------|----------|-------|---------------|---------------|-----------|------------|
| 113 G113 | 20 | 32 | .38 | .30 | .52 | .46 | -.97 | -.78 |
| 114 G114 | 20 | 32 | .38 | .30 | .52 | .46 | -.97 | -.78 |
| 115 G115 | 20 | 32 | .38 | .30 | .52 | .46 | -.97 | -.78 |
| 116 G116 | 20 | 32 | .38 | .30 | .52 | .46 | -.97 | -.78 |
| 117 G017 | 20 | 32 | .38 | .30 | .33 | .33 | -1.60 | -1.16 |
| 118 G118 | 20 | 32 | .38 | .30 | .33 | .33 | -1.60 | -1.16 |
| Mean | | | .56 | | .97 | 1.00 | -.08 | .07 |
| SD | | | .30 | | .68 | .82 | 1.09 | .87 |



(unit= 1.00 , origin= .00)

| Score | Estimate (logits) | Error | Transformed Estimate | Transformed Error |
|-----------|----------------------|-------|-------------------------|----------------------|
| (max= 32) | | | | |
| 31 | 2.46 | .81 | 2.46 | .81 |
| 30 | 2.00 | .59 | 2.00 | .59 |
| 29 | 1.70 | .51 | 1.70 | .51 |
| 28 | 1.46 | .46 | 1.46 | .46 |
| 27 | 1.27 | .43 | 1.27 | .43 |
| 26 | 1.09 | .40 | 1.09 | .40 |
| 25 | .94 | .38 | .94 | .38 |
| 24 | .81 | .36 | .81 | .36 |
| 23 | .68 | .34 | .68 | .34 |
| 22 | .57 | .33 | .57 | .33 |
| 21 | .47 | .31 | .47 | .31 |
| 20 | .38 | .30 | .38 | .30 |
| 19 | .29 | .30 | .29 | .30 |
| 18 | .20 | .29 | .20 | .29 |
| 17 | .12 | .29 | .12 | .29 |
| 16 | .04 | .28 | .04 | .28 |
| 15 | -.04 | .28 | -.04 | .28 |
| 14 | -.12 | .28 | -.12 | .28 |
| 13 | -.21 | .29 | -.21 | .29 |
| 12 | -.29 | .30 | -.29 | .30 |
| 11 | -.38 | .31 | -.38 | .31 |
| 10 | -.48 | .32 | -.48 | .32 |
| 9 | -.59 | .34 | -.59 | .34 |
| 8 | -.71 | .36 | -.71 | .36 |
| 7 | -.84 | .38 | -.84 | .38 |
| 6 | -1.00 | .41 | -1.00 | .41 |
| 5 | -1.19 | .45 | -1.19 | .45 |
| 4 | -1.42 | .50 | -1.42 | .50 |
| 3 | -1.71 | .58 | -1.71 | .58 |
| 2 | -2.11 | .70 | -2.11 | .70 |
| 1 | -2.80 | .99 | -2.80 | .99 |





Lampiran 9. Kegiatan penelitian



Lampiran 10. Surat Permohonan Rekomendasi penelitian

**UNIVERSITAS MUHAMMADIYAH MATARAM**
FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN
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Nomor : U21/IL3.AU/TKIP-UMMAT.F.VII/2021
Lamp. : 1 (Satu) Eksemplar
Perihal : **Permohonan Rekomendasi Penelitian**

Kepada
Yth. Kepala Sekolah MTs Al-Raisiyah Mataram
di
Tempat

Assalamu'alaikum Wr. Wb.

Dengan hormat, mohon kiranya mahasiswa yang tersebut namanya di bawah ini dapat diberikan rekomendasi penelitian dalam rangka penilaian skripsinya dengan penjelasan sebagai berikut.

Nama : Nury Hardiani
NIM : 117170001
Jurusan/Program Studi : Pendidikan / Fisika
Judul : Pengembangan *Assesment Kognitif Untuk Mengukur Kemampuan Program Problem Solving* Pada Materi Pokok Tekanan Zat Sebagai Dasar Penyusunan *Worked Examples* siswa Kelas VIII MTs Al-Raisiyah Mataram Tahun 2021/2022
Tempat Penelitian : MTs Al-Raisiyah Mataram

Demikian untuk maklum dan atas kerjasama yang baik diucapkan terima kasih.

*Wabillahiingq Walhikmah
Wasalamu'alaikum Wr. Wb.*

Mataram, 21 Juli 2021
A.n Dekan,
Wakil Dekan I

Sri Maryani, S.Pd., M.Pd.
NIDN 0811038701

Tembusan:

1. Rektor UMMAT (sebagai laporan)
2. Ketua Jurusan Program Studi
3. Yang bersangkutan
4. Arsip

Lampiran 11. Surat Penelitian

PEMERINTAH KABUPATEN BIMA
DINAS PENDIDIKAN, KEBUDAYAAN, PEMUDA DAN OLAH RAGA
SMP NEGERI 2 SAPE
Alamat: Jln. Jrs. Sape Desa Sari Bima

SURAT KETERANGAN
Nomor: 004/ 20 /01.1/01.SMP -2/2021


Yang bertanda tangan di bawah ini,

Nama : SYAFRUDDIN, S.Pd
NIP : 19700402 200003 1 006
Pangkat/gol.Ruang : Pembina, Tk.I (IV/b)
Jabatan : Kepala Sekolah
Alamat : Desa Sari Kecamatan Sape Kabupaten Bima - NTB

Menerangkan dengan sesungguhnya bahwa:

NAMA : NURY HARDIANTI
NIM : 117170001
JURUSAN : PENDIDIKAN / FISIKA
JUDUL : Pengembangan *Avesmen* Kognitif Untuk Mengukur Kemampuan Program Solving Pada Meteri Pokok Tekanan Zat Sebagai Dasar Penyusunan *Worked Examples* siswa Kelas VIII, SMP NEGERI 2 SAPE Tahun 2021/2022.

Babwa Mahasiswa tersebut telah melaksanakan PENELITIAN di SMP NEGERI 2 SAPE.
Demikian Surat ini kami buat dengan sebenar- benarnya untuk dipergunakan sebagai mana mestinya.

Sape-Bima, 28 Juli 2021
Kepala Sekolah,

SYAFRUDDIN, S.Pd
NIP. 19700402 200003 1 006

