

DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)
ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)

Semester Final Examination**Course No: TVE 4111****Course Title: Occupational Analysis and Course Construction****Winter Semester (2017-2018)**

Time : 3.00 Hrs.

Full Marks : 150

There are 8 (eight) questions. Answer any 6 (six).
Figures in the right margin indicate marks of the questions.

- 1 a. Distinguish between the terms *Job* and *Occupation*. The word *Occupation* is synonymously used for the term *Vocation* in this context describe at least four major characteristics of the concept of an *occupation*. 7+8
- b. Why has the International Labour Organisation (ILO) developed the International Standard Classification of Occupation (ISCO)? What are the *sub-groups* of the major group *Professionals* according to ISCO. 4+6
- 2 a. Explain the terms (i) *Competence*, and (ii) *Qualification*, as illustrated in Ellstroem (1997). 3+2
- b. Explain the concept of *Occupational Competence* based on Ellstroem and Bader-Mueller/KMK. 20
- 3 a. What is meant by *Job/ Occupational Analysis* and what are the aims of *Job/ Occupational Analysis*? 3+2
- b. State the three questions that address the issues of organisation, activity, and informational content regarding *Job/ Occupational Analysis*. 6
- c. Mention the various elements that result from *Task Analysis*. 6
- d. State the steps through which a facilitator guides the DACUM committee for determining curriculum content. 8
- 4 a. Describe the *Job/occupational analysis* and *Task analysis phases* according to C.W. Joyner. 10
- b. Describe the major features of the *Upper Secondary Education (ISCED-Level 3)* programme with its sub-classification and the possibilities of accessing higher level study programmes. Explain how *ISCED-Level 4* differs from *Level 3 and 5*. 15
- 5 IUT has recently recruited cafeteria service staff for its newly built female dormitory. Suppose you are assigned to determine the training needs (TN) for these newly recruited service staff.
 - a. What are the different steps you should follow for determining the TN? 5
 - b. What are the methods usually used for finding out the current skills and knowledge of employees relevant to their jobs? Describe any two methods you would use for this task including advantages and disadvantages of these methods. 20
- 6 a. What is "Industry Competency Standards", and what are the components it includes? 10
- b. Explain the following terms with at least one example for each term: 15
 - i) Global objectives
 - ii) Educational objectives and
 - iii) Instructional objectives
- 7 a. What are the three domains of learning? 3
- b. Describe the Anderson-Krathwohl Taxonomy for Learning, Teaching and Assessing. 22
- 8 a. What are the steps you should follow in designing a training course? 5
- b. Explain the term *Learning outcome* (LO). State the criteria you should follow when you write learning outcomes. 10
- c. Arrange the following verbs according to different levels of cognitive process ability: designing, judging, implement, organize and compare. Write at least one Learning Outcome using each of these verbs and classify them at different levels of cognitive process. 10

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Semester Final Examination

Course No: Hum 4117

Course Title: Islamic History, Science and Culture

Winter Semester (2017-2018)

Time : 3.00 hours.

Full Marks : 150

There are 8 (eight) questions. Answer any 6 (six).
Figures in the right margin indicate marks of the questions.

1. a) Analyze the five factors that determine the rise and fall of a nation according to *al- Masudi*. 10
b) Discuss the role of *Tabari* as the pioneer of Islamic History. 15
2. a) Give a description of the subject matters of *Kitab al Ibar*. 10
b) Analyze *ibn-Khaldoun*'s theory of group mind in light of the modern perspective. 15
3. a) Elaborate the socio-economic chaos of the Roman civilization before the advent of Prophet Muhammad(S.M.) 15
b) Discuss the condition of the Christianity before the advent of Prophet Muhammad(S.M.). 10
4. a) Discuss opinion of the scholars regarding the scientific miracles of al-Quran. 15
b) Explain any two of the scientific phenomenon in light of the Quranic verses. 10
5. Analyze the industrial activities of the early Muslim civilization related to the following:
a) Textiles and fabrics 10
b) Paper 15
6. Evaluate the role of the Muslims in the development of the following area:
a) Geography 15
b) Mathematics 10
7. Write about the contribution of the following persons to the development of medical science:
a) Ibn-Sina 15
b) Al- Razi 10
8. Write short notes on the following:
a) *Masjid al-Aqsa* 10
b) Development of the Muslim Navigation system 10
c) Era of Translation 5

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DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)

Semester Final Examination

Course No: Hum 4125

Course Title: Islamic Philosophy, History and Culture

Winter Semester (2017-2018)

Time : 3:00 hours.

Full Marks : 150

There are 8 (eight) questions. Answer any 6 (six).
Figures in the right margin indicate marks of the questions.

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|----|---|----|
| 1. | Explain the status of the following as sources of Islamic Shariah: | |
| | a) Al- Quran. | 10 |
| | b) <i>Qiyas</i> (Analogical reasoning) | 15 |
| 2. | a) Analyze the importance of intelligence in Islam in the light of al-Quran and Sunnah. | 15 |
| | b) 'Lower desire is opposite of intelligence'- Explain from the Islamic perspective. | 10 |
| 3. | a) Discuss the basic features of Islamic economics. | 10 |
| | b) Prove the legitimacy of <i>Mudaraba</i> system in light of the following: | |
| | I) Practice of the Prophet (S.M.) | 10 |
| | II) Public interest | 5 |
| 4. | a) Elaborate ibn-Khaldouns <i>theory of group mind</i> in light of the modern perspective. | 15 |
| | b) Why did he criticize other scholars like al-Mas'udi? | 10 |
| 5. | a) Evaluate the role of Abu Bakr rdialluhanhu as the savior of the new born Muslim caliphate. | 12 |
| | b) Discuss the development of Muslim navigation system under the rightly guided Caliphs. | 13 |
| 6. | Analyze the industrial activities of the early Muslim civilization related to the following: | |
| | a) Paper | 13 |
| | b) Glass | 12 |
| 7. | a) Discuss the opinions of the scholars regarding the scientific miracles of al-Quran. | 15 |
| | b) Explain any two of the scientific phenomenon in light of the Quranic verses. | 10 |
| 8. | Discuss the role of the Muslims in the development of the following area: | |
| | a) Geography | 10 |
| | b) Medical Science | 15 |

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DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)

Semester Final Examination

Course No: TVE 4127

Course Title: Methods and Techniques of Teaching

Summer Semester (2017-2018)

Time : 3 hrs

Full Marks : 150

There are 8 (eight) questions. Answer any 6 (six).

Figures in the right margin indicate marks of the questions.

1. a) In today's dynamic classrooms, the teaching and learning process is becoming more nuanced, more seamless — it flows back and forth from students to teachers. Write short notes on the following trends of teaching-learning: (i) Collaborative; (ii) Tech-powered; (iii) Blended 15
- b) Building rapport with students is very important for teaching. The contact between students and teachers are vital to the students' success.'- in light with this statement list five recommended actions for a teacher for both classroom and online environment that encourage contact between students and teachers. 10
2. a) Categories teaching methods based on the parameters. Draw the teaching methods quadrant showing examples for each category:
 - Teacher-centered approach versus a student-centered approach, 08
 - High-tech material use versus low-tech material use. 08
- b) Placing students at the center of their own learning requires their collaboration. They need a voice in *why*, *what*, and *how* learning experiences take shape. Discuss. 09
3. a) In your own perspective, what is Surface learning? 05
- b) Deep learners aimed to understand the meaning behind the text, and interacted with the material by creating relevant arguments and examples related to their daily lives. Explain the five factors that influences Depth of Learning. 10
- c) Differentiate between Surface-based and deep learning approaches. Use a table in this regard. 10
4. a) Explain the different roles of a teacher in inquiry-based learning. 12
- b) Discuss the teachers' role as 'formal authority', 'expert' and 'personal model' in direct approach of teaching method. 13
5. a) What is extrinsic motivation? 05
- b) In this dotcom era, technology has been integrated in all aspects of life including teaching and learning. Students are becoming more in tune with their studies through the utilization of technology. In your own perspective, how can you use technology to motivate students extrinsically towards learning? 15
- c) State any five maxims of teaching that you intend to use in your future classes. 05
6. a) What is teaching-learning process? With a help of a diagram, explain the teaching-learning-process from system point of view. 15
- b) According to Crow and crow (1973), explain what is meant by learning. 05
- c) Differentiate between learning activities and learning experiences. 05
7. a) State five basic methods of teaching. 05
- b) Explain the circumstances where one would opt for independent study. 10
- c) Mr. Muhammad has recently joined teaching in TVE department as a new lecturer. He wishes to use lecture as a method of teaching since it's much easier and familiar to him. Explain the characteristics of a quality lecture with which Mr. Muhammad has to put into considerations in order to make his presentation more effective. 10
8. a) What is ICT in relation to Education? 05
- b) Discuss the barriers involved in introducing ICT in education, especially in OIC member states. 10
- c) Discuss the advantages and disadvantages of introducing ICT in education. 10

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Semester Final Examination

Course No: Hum4137/ Hum 4157

Course Title: Islamiat

Winter Semester (2017-2018)

Time : 3:00 hours

Full Marks : 100

There are 8 (eight) questions. Answer any six (6).
Figures in the right margin indicate marks of the questions.

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|----|---|-------|
| 1. | a) Explain the Islamic point of view regarding the human life. | 6.67 |
| | b) Analyze the individual and social impacts of <i>Salat</i> and <i>Sawm</i> . | 10 |
| 2. | Explain the status of the following as sources of Islamic Shariah: | |
| | a) Al- Quran. | 6.67 |
| | b) <i>Ijma</i> . | 10 |
| 3. | a) Elaborate status of the lower desire in Islam. | 10.67 |
| | b) Explain the forbidden acts as stipulated in al-Quran. | 6 |
| 4. | “In Islam, under proper regulation natural instincts could be turned into moral virtues”- explain your stance regarding this dictum. How do you think negative instincts like anger and hate could be turned into moral virtues? | 16.67 |
| 5. | Explain how Islamic Sharia could be adapted to the contemporary society through the following secondary sources: | |
| | i) Legal Stratagems (<i>Hiyal</i>) | 6.67 |
| | ii) Intervention of the authority (<i>Siyasa</i>) | 10 |
| 6. | a) Discuss the basic features of Islamic Economics. | 10 |
| | b) Discuss the criteria to be met by an individual in light of the Quranic verse. | 6.67 |
| 7. | a) What makes <i>Mudaraba</i> different from the Interest system? | 4.67 |
| | b) Prove the legitimacy of <i>Mudaraba</i> system in light of the following: | 8 |
| | I) Practice of the <i>Sahaba</i> (R.A.) | 4 |
| | II) Public Inertest. | |
| 8. | The Islamic law of inheritance requires that the daughter will receive half of what her brother inherits from one of the deceased parent’s estate. Apparently, to many it constitutes a kind of gender discrimination. Elaborate your arguments regarding this issue. | 16.67 |

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Semester Final Examination

Course No: TVE 4139

Course Title: Principles of Technical and Vocational Education

Summer Semester (2017-2018)

Time: 3:00 hours

Full Marks: 150

There are 8 (eight) questions. Answer any 6 (six).
Figures in the right margin indicate marks of the questions.

- 1 a. "Technical and Vocational Education and Training (TVET) is the master key for economic development of a country". In line with this statement describe the rationale and needs of TVET in the OIC member countries. 15
- b. Is there any difference between "Technical Education" and "Vocational Education"? Justify your answer. 10
- 2 a. What are the factors that make TVET systems heterogeneous and diverse? 10
- b. Describe the TVET system of your country and mention the current issues and major challenges of TVET institutions in the OIC countries. 15
- 3 The German Dual System of initial Vocational Education might be considered as state-controlled market model." In this context explain why it is called the Dual System and describe the role of vocational schools/colleges and the enterprises/industries as two separate places of learning. 25
- 4 The TVET models and systems in all the states of the United Kingdom are the same with minor differences. Describe the following parameters of the Scottish TVET Model: 25
 - a. Governance, b. Business model, and c. Training.
- 5 a. Mention the elements of educational administration according to Russel T Greg. Suppose you are the head (chief executive) of an educational institute and you want to make a decision, write down the steps you should follow in making the decision and illustrate how you can influence your teachers/staff in order to realize it. 15
- b. Explain why staff participation is important in decision making. 10
- 6 a. You are asked to submit a developmental plan for your institution to your higher authority. What are the basic principles you should follow to draw up the plan? 10
- b. Illustrate the model of planning as a cyclic seven-phase process given by Banghart and Trull. 15
- 7 a. What do you mean by 'Coordinating' as one of the elements of educational administration? The coordination of the activities of different units/departments of an organization depends upon many factors. What are these factors? 5+5
- b. Explain how the coordination of the activities of school personnel may be facilitated. 15
- 8 a. What do you understand by *Evaluation* of TVET? Why is the evaluation of TVET institutions and programmes necessary? 10
- b. Describe in detail the evaluation process of TVET. 15

Semester Final Examination
Course No: TVE 4141
Course Title: History of Technical and Vocational Education

Summer Semester (2017-2018)
Time : 3 hrs
Full Marks : 150

There are 8 (eight) questions. Answer any 6 (six).
Figures in the right margin indicate marks of the questions.

1. a) The educationist has commented "education is meaningful only when it aims at some vocation or employment"- in light with this quotation, define vocational education. 05
b) Briefly explain three advantages of technical and vocational education. 15
c) Why is the absence of liberal education considered as limitation of technical and vocational education? 05
2. Discuss briefly the history of TVET of any *one* of the following OIC member states. 25
 - Gambia
 - Bangladesh
 - Pakistan
3. a) What is Sloyd? 10
b) 'Sloyd educational model was ahead of its time'- Justify by giving two distinctive examples of Sloyd. 05
c) State and explain the learning goals of the courses in various occupational fields designed in the Russian system of manual training. 10
4. a) Describe the types of Vocational educational school that were introduced in England as a result of industrialization. 15
b) Describe how the earliest schools established between 600 -1100 were controlled by churches 10
5. Give details of the heritage of vocational education on the following era- 25
 - a) Primitive society before use of language
 - b) Oriental civilization in China
 - c) Early Western Civilization
 - d) Earlier Education system of Sparta
6. a) Narrate the history reformation of education system in America Early to Middle 20th Century. 15
b) Describe at least 2 important legislations passed by the government (America) in order to provide adequate training, in 19th century. 10
7. a) State the important aims of Sloyd system that Otto Solomon laid out in his handbook of *Educational Sloyd*. 05
b) *Sloyd, unlike its major rival the 'Russian system', was designed for general rather than vocational education-* Justify with examples. 10
c) State and explain the learning goals of the courses in various occupational fields designed in the Russian system of manual training. 10
8. a) Describe the different levels at which National Vocational Qualification (NVQ) may be accredited as used in European Vocational Education. 10
b) What are the major benefits of NVQs in Vocational Education? 10
c) State five main characteristics of NVQs. 05

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Semester Final Examination

Course No: TVE 4143

Course Title: Comparative Education

Winter Semester (2017-2018)**Time:3:00 hours****Full Marks:150**

There are 08 (Eight) questions. Answer any 06 (Six).
Figures in the right margin indicate marks of the questions.

1. (a) Define comparative education as viewed by Dr. Nicholas Hans. In light of that Concept, what is comparative education? 5
 (b) What are the objectives of comparative education? - explain. 10
 (c) Discuss different problems of comparative education. 10
2. Discuss briefly different factors that influence in comparative education. 25
3. (a) Why different methods are used for studying of comparative education? 20
 Explain briefly each of these methods.
 (b) Explain briefly historical review of comparative education. 5
4. (a) Explain the Structure of UK education system with appropriate diagram. 12
 (b) State salient features of UK education system. 8
 (c) Explain briefly about the teacher training in UK education system. 5
5. (a) Explain Structure of France education system with help of diagram. 15
 (b) Explain briefly salient features of France education system. 10
6. (a) Explain Structure of USA education system with the help of diagram. 15
 (b) Statesignificant features of USA education system. 5
 (c) Discuss briefly importance of community colleges in USA. 5
7. (a) Explain Structure of Russian education system with the help of diagram. 15
 (b) State principal tenets of democratic philosophy of Russia education system. 5
 (c) Explain briefly problems and perspectives of Russian education system. 5
8. (a) Explain briefly TVET system of your own country. 10
 (b) What are the problems facing in your current TVET system? 15
 How can you develop technical & vocational education in your own country? Discuss.

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Semester Final Examination

Course No: HUM 4145

Course Title: Islamiyat

Winter Semester (2017-2018)

Time: 3:00 hours

Full Marks: 100

There are 8 questions. Answer question no. 1 and any 5 from the rest 7.

Figures in the right margin indicate marks of the questions.

1. a) 'Marriage is the nucleus of family system in Islam', how is it so? Discuss the position of marriage in Islam as well as the Islamic measures for the smooth conduct of any marriage. 9
- b) 'Allah's pleasure and displeasure are rested upon the pleasure and displeasure of the parents', said the Prophet. Discuss the rights of the parents in light of this *hadīth*. 11
2. a) 'Whoever reposes his faith in Allah and the Hereafter should maintain good relation with the relatives', explain the rights and responsibilities of the relatives in light of this *hadīth*. 8
- b) 'Your servants are your brothers', said the Prophet. If it is so then how shall you behave Islamically with your servants/employees/subordinates? Explain. 8
3. a) 'Islam advocates equitable distribution of wealth', discuss this basic principle in the light of Islamic economic system. 7
- b) You want to initiate a business enterprise, what are the areas you should consider as '*halāl* business' areas and what are the areas you should avoid as '*harām* business areas'? What are the principles on the basis of which something is declared as '*halāl*' or '*harām*'? Discuss. 9
4. a) "Say! Allah is *Ahad...*", the *Sūrah al-Ikhlās* of the Qur'an is the quintessence of *Tawhīd* of Allah, how shall you explain *Tawhīd*? Discuss all categories of *Tawhīd* in details. 8
- b) '*Shirk* with Allah is an unforgivable sin; still many Muslims are committing it in different dimensions', discuss these dimensions of *Shirk* along with meaning and categories. 8
5. a) "*Salāt* is the defining line between Islam and *kufr*", discuss different aspects of the significance of *Salāt* on the basis of this *hadīth*. 9
- b) 'You should perform *Salāt* as you see me performing *Salāt*', said the Prophet (saas). Explain the Prophet way of performing *Salāt*. 7
6. a) 'Jihad is stated by the Prophet (saas) as the highest pinnacle of virtue in Islam, but this is the most misunderstood Islamic term'; what is then the true meaning of Jihad? Do you think that Islam was spread by force? Give your arguments. 9
- b) 'Environmental protection is the greatest concern of today's world, and despite all movements and measures the danger is becoming greater everyday'; how can the viewpoints of Islam kill this problem? Give an outline of Islamic protection of environment. 7
7. a) 'Zakat is the most practical measure for poverty eradication', do you agree? Discuss the importance of Zakat and its role for poverty eradication highlighting the recipients of Zakat. 8
- b) 'Zakat al-Fitr is a means of purification for the fasters and provision for the poor', discuss the importance and ruling of Zakat at Fitr in the light of this statement of the Prophet (saas). 8
8. a) 'Islam is the genuine preserver of human rights', how does it then preserve the human rights? Explain the basic pillars of human rights protection in Islam along with a picture of the status of human rights under the custody of the so-called human rights champions. 8
- b) 'Fasting has been prescribed by Allah for inculcating *taqwa* in human minds' how does it do so? Explain the types, obligatory, prohibited and despicable acts, and breakers and non-breakers of fasting. 8

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Semester Final Examination

Course No: HUM 4147

Course Title: Technology, Environment and Society

Winter Semester (2017-2018)

Time : 3 hours

Full Marks : 150

There are 8 (Eight) questions. Answer any 6 (Six).
Figures in the right margin indicate marks of the questions.

1. a) Define ecosystem. Describe the components of an ecosystem. 05
b) Write a short note on Ecosystem Services. 10
c) Define Biodiversity. What are the necessary elements of a rich biodiversity in an ecosystem? Explain with example. 10
2. a) Define carrying capacity of an ecosystem. Do you think, carrying capacity can be enhanced with the help of science and technology? Clarify with appropriate example. 10
b) Explain the term Environmental Justice with example. 05
c) Why is Environmental Stewardship important for environmental protection? Explain the core principles of Environmental Stewardship. 10
3. a) Why does the curve of temperature fluctuate in various layers of atmosphere? Explain with appropriate drawings. 10
b) List out the consequences of Global Warming on Earth. What are the actions can be taken to reduce the adverse impact of Global Warming? 10
c) Write a short note on 'Acid Precipitation'. 05
4. a) Define Climate and Climate Change with appropriate examples. 05
b) Various researches revealed that, concentration of carbon dioxide in atmosphere in the last 50 years (1960-2010) increased from 310 ppm to 390 ppm. Mention the reasons behind this increase. 10
c) Describe the impacts of air pollution on livelihood and environment. 10
5. a) Describe Hydrological/Water cycle with necessary illustration. 10
b) Define Water Quality. How can Biochemical Oxygen Demand (BOD) help us to measure Water Quality? 10
c) Define point water pollution and non-point water pollution with appropriate examples. 05
6. a) Write short notes on the following: i) Waste Hierarchy ii) Polluter Pays Principle, and iii) 3R(s) in Waste Management. 5x3
b) What are the main types of Renewable energy sources? Write the Pros and Cons of Renewable Energy. 10
7. a) Write down major environmental concerns of today's world. What are the impact areas of a Cyclone on the coastal communities? 10
b) Write short notes of the following: i) Kyoto Protocol, ii) Carbon Footprint, iii) Carbon Trading. 5x3
8. a) Define risk, hazard, vulnerability and coping capacity in the face of natural disaster. Give example of each terminology from your understanding. 10
b) Give a list of Ecologically Critical Areas under the Bangladesh Environmental Conservation Rules, 1997. 05
c) Write short notes of the following: i) Urban Heat Island, ii) Biodiversity Conservation. 5x2

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DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)

Semester Final Examination

Winter Semester (2017-2018)

Course No: TVE 4151

Time: 3: 00 hours

Course Title: Technical & Vocational Education Ethics & Society

Full Marks: 150

There are 8 (eight) questions. Answer any 6 (Six).

Figures in the right margin indicate marks of the questions.

1. a) Distinguish between moral and ethics with examples. 10
b) Explain the importance of ethics in Technical and Vocational Education and Training (TVET). 15
2. a) Explain situational ethics. 10
b) In the industry, the ethical climate of any organization begins with the debate –‘Why should we be ethical if we can avoid punishment and gain reward? If the profit margins are high due to offering an inferior product or through exaggerated marketing, why should we raise our ethical standards?’ Discuss your position while addressing these questions. 15
3. a) Classify field of Ethics. List the ethical theories with their concerning areas that have been developed under the field of ethics. 15
b) What is conscience? ‘A worker in a company sees a tempting equipment in a place that he could easily steal. He knows that it would be wrong to steal it’. – explain the state of worker’s mind in light of the meaning of conscience. 10
4. a) Differentiate between teleological and deontological ethical theories. 10
b) ‘The best action will be that which provides the most good or does the least harm, or, to put it another way, produces the greatest balance of good over harm’- Which ethical theory does this sentence promote? Give one example of such activity from your organization (e.g., IUT). 15
5. a) Briefly explain the steps involved in resolving ethical dilemmas. 15
b) ‘An engineer shall not solicit or submit engineering proposals on the basis of competitive bidding’ – Discuss with examples. 10
6. a) What is codes of ethics? Discuss its importance in education and training. 15
b) Outline the limitations of codes of ethics in the professional society. 10
7. Make a list of things that are intrinsically good. 25
a) Do you believe that every intelligent person would agree with your list?How much of your list is culture bound?
b) Is there any reason why engineers should adopt a particular theory of (intrinsic) good as either pleasure, or a list is of desirable activities and relationships, happiness or preference satisfaction?
8. a) What is Hedonism? Discuss the two moral traditions of hedonism with examples. 10
b) ‘Moral goodness of an act is based on religious authority’ – what ethical theory does it refer to? Discuss the benefits of that moral theory. 15

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Semester Final Examination

Course No: Hum 4157

Course Title: Islamiat

Winter Semester (2017-2018)

Time : 3:00 hours.

Full Marks : 100

There are 8 (eight) questions. Answer any six (6).
Figures in the right margin indicate marks of the questions.

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|----|---|-----------------|
| 1. | a) Explain the wisdoms behind the religious obligations and prohibitions. | 2 |
| | b) Explain the individual and global impacts of <i>Salat</i> and <i>Hajj</i> . | $6\frac{2}{3}$ |
| | | 10 |
| 2. | Explain status of the following as sources of Islamic Shariah: | |
| | a) Al- Quran. | $6\frac{2}{3}$ |
| | b) <i>Ijma</i> . | 10 |
| 3. | a) Elaborate status of the lower desire in Islam. | |
| | b) Explain the forbidden acts as stipulated in al-Quran. | $10\frac{2}{3}$ |
| | | 6 |
| 4. | “In Islam, under proper regulation natural instincts could be turned into moral virtues”- explain your instance regarding this dictum. How do you think negative instincts like anger and hate could be turned into moral virtues? | $16\frac{2}{3}$ |
| 5. | Explain how Islamic Sharia could be adapted to the contemporary society through the following secondary sources: | |
| | i) Legal Stratagems (<i>Hiyal</i>) | $6\frac{2}{3}$ |
| | ii) Intervention of the authority (<i>Siyasa</i>) | 10 |
| 6. | a) Discuss the basic features of Islamic Economics. | 10 |
| | b) Discuss the criteria to be met by an individual in light of the Quranic verse. | $6\frac{2}{3}$ |
| 7. | a) What makes <i>Mudaraba</i> different from the Interest system? | $4\frac{2}{3}$ |
| | b) Prove the legitimacy of <i>Mudaraba</i> system in light of the following: | |
| | I) Practice of the <i>Sahaba</i> (R.A.) | 8 |
| | II) Motivation. | 4 |
| 8. | The Islamic law of inheritance requires that the widow will receive $\frac{1}{4}$ of her deceased husband's estate. But, that too is reduced to $\frac{1}{8}$ in the presence of children. Apparently, to many it constitutes a kind of gender discrimination. Elaborate your arguments regarding this issue. | $16\frac{2}{3}$ |

DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)
ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)

Semester Final Examination

Course No: : Hum 4317/Hum 4151

Course Title: Social Studies and Accounting

Winter Semester 2017-2018

Time : 3 hours.

Full Marks : 150

There are two parts; Part 'A' and Part 'B'. Use separate answer scripts for each part.

There are 4 (four) questions in each part. Answer any 3 (three) from each part.

Figures on the right margin indicate marks of the question

Part A: Social Studies

1. a) "IUT-OIC is a modest and modern Islamic and technological educational institution". In short, discuss the religious and social activities around the campus emphasizing on brotherhood and cultural activities. 8
- b) What do you understand by the term *Citizen*? Briefly discuss the duties and rights of a citizen. 9
- c) Give the meaning and definition of the *state* with special emphasis on Prof. Garner's definition. Explain any 6 (six) functions of a modern state. 8
2. a) Do you think the United Nations Organization (UNO) is a state? Clarify the four (4) elements of the state. 8
- b) Show how the society enhances the education to its members through the three different types of education: formal, non-formal and informal. Justify, your answer by giving examples from your society. 9
- c) "Society is a web of social relationships". Show how and give comment and support your answer by drawing a diagram. 8
3. a) Explain how far the United Nation Organisation (UNO) succeeded in solving international critical issues and problems in a professionalism way. Clarify with examples from the recent and the past issues. 12
- b) "Democracy as the best way (system) to govern and serve the people of and the citizens from all walks of life in the country as the legal representative by majority in election". Give the answer in the light of the basic principles and merits of democracy. 13
4. In short give your comments on the following:- 25
 - a) Commonwealth formation and its aims.
 - b) Qualities of a good citizen.
 - c) OIC objectives and aims.

Part B: Accounting

1.	<p>(a) Leonel Messi has started a football accessories shop called 'Messi Enterprise' on 1 January 2018. The business has made the following transactions during the month of January 2018</p> <p>Jan 1 Messi invested 10,00,000 Taka cash in his business</p> <p>Jan 5 Purchased equipment costing 100,000 Taka for cash</p> <p>Jan 10 purchased office furniture for 10,000 Taka on account</p> <p>Jan 12 Paid 5000 Taka cash for advertising</p> <p>Jan 15 Purchased football balls, gloves, footwear, bags, air pumps from Ronaldo Ltd on account for 50,000 Taka</p> <p>Jan 22 Sold football balls of 10,000 Taka on cash</p> <p>Jan 28 paid the creditors on balance due</p> <p>Jan 30 withdrawal made by the owner for an amount of 50,000 Taka</p> <p>Jan 30 paid employee salaries 10000 Taka</p> <p>Required: Show the effects of the transactions on the accounting equation using the following format. Hint: Show bracket sign () to denote decrease in asset/liabilities/ owner's equity</p> <table border="1"> <thead> <tr> <th rowspan="2">Date</th> <th colspan="3">Assets</th> <th>Liabilities</th> <th colspan="4">Owner's equity</th> </tr> <tr> <th>Cash</th> <th>Equipment</th> <th>Furniture</th> <th>Accounts Payable</th> <th>Capital</th> <th>Withdrawal</th> <th>Revenues</th> <th>Expense</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>(b) What are the differences between journal and ledger?</p>	Date	Assets			Liabilities	Owner's equity				Cash	Equipment	Furniture	Accounts Payable	Capital	Withdrawal	Revenues	Expense										18
Date	Assets			Liabilities	Owner's equity																							
	Cash	Equipment	Furniture	Accounts Payable	Capital	Withdrawal	Revenues	Expense																				
2.	<p>(a) Sakib Al Hasan started 'Sakib Sports accessories enterprise' on 1 April, 2018. The business made the following transactions during the month of April</p> <p>April 1 Sakib invested Taka 5,00,000 cash in the business</p> <p>April 7 Purchased cricket bat, ball, and sports accessories from Masrafee Enterprise of Taka 100,000 on account.</p> <p>April 10 Sold cricket bat of 10,000 Taka to customers on account.</p> <p>April 15 Paid Masrafee Enterprise for the balance due on April 7</p> <p>April 20 Received the balance due from customers.</p> <p>April 30 Paid employees' salaries of 10,000 Taka.</p> <p>Requirements:</p> <ol style="list-style-type: none"> 1) Prepare necessary journal entries in the books of Sakib Sports accessories enterprise' 2) Prepare necessary ledger accounts [T Accounts] 3) Prepare a trial balance on April 30 and show the arithmetic accuracy of the accounts. <p>(b) What is trial balance? What are the benefits of preparing trial balance? Do you find any limitation of trial balance?</p>	7																										

4. The following is the trial balance of A Enterprise for the year ended December 31, 2017

Debit		Credit	
Particulars	Amount	Particulars	amount
AB Bank account	15000	Accumulated depreciation, equipment	20000
Accounts Receivable	11000	Bank loan	25000
Cash	30000	Unpaid Salaries	10000
Prepaid insurance	2000	A, capital	100000
Equipment	100000	Sales	515000
A drawing	12000	Interest revenue	<u>4500</u>
Sales return and allowance	6000		<u>674500</u>
Sales discount	5000		
Cost of goods sold	360000		
Transportation-out	7000		
Advertising expense	12000		
Salaries expense	56000		
Utilities expense	18000		
Rent expense	24000		
Depreciation, Equipment	9000		
Insurance expense	4500		
Interest expense	<u>3000</u>		
	<u>674500</u>		

Requirements:

- Prepare income statement for the year ended December 31, 2017
- Prepare a balance sheet as on December 31, 2017.

13
12

3.	(a) From the following balances extracted from the books of a trader, prepare income statement and balance sheet as on 31st March, 2018.	15
	Cash in hand	4200
	Cash at Bank	16800
	Bills Receivable	18000
	Bills payable	16000
	Accounts receivable	24600
	Accounts payable	32400
	Capital	50000
	Drawings	18000
	Sales	105000
	Purchases	75000
	Transportation in	2700
	Salaries	12000
	Advertisement	2400
	Insurance	1600
	Furniture	7500
	Inventory	18600
	Office Rent	2000
	(b) Write short notes on journal, ledger, trial balance, final accounts.	10

DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)
ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)

Semester Final Examination

Course No: Hum 4749

Course Title: Science, Technology and Islam

Summer Semester (2017-2018)

Time : 3:00 hours

Full Marks : 100

There are 8(Eight) questions. Answer any 6 (six).Figures in the right margin indicate marks of the questions.

1. a) Give the definition and meaning of **Science , Technology and Islam .** 08
 b) "The **Education** has been invented, established thousands years ago by the Muslims before the whole world knows about it. Show how, when and where was inventd and established". Mention the founders, places of study, years and the name and type of the degree awarded in olden days when education started. 08.66
2. a)"The notion of **Tawhid** is the most important corner stone in the conceptual frame work for the Islamic architecture". Clarify the term **Tawhid** or the (**God's Oness**). 08
 b)" Muslims have made immense contribution to all branches of the science, but the mathematic their favourite subject". Explain the contribution in Arithmetic of the following Muslims scholars: (i). **Jaffar Ibn Musa Al-Khowurizmi**(790-850). (ii). **Abu Zakariya Muhammad Al-Nasavi**. 08.66
3. a)"The Muslim world lags behind in education, science and technology and the key problem facing scientific achievement in the Muslim world, result from the cumulative effect of multiple factors, and not from a single dominant cause". Identify and discuss those factors. 08
 Support your answer by giving some suggestions to solve the problem.
 b) Explain the **Heliocentric theory** and draw a diagram to support your answer. 08.66
4. a) Comment on the following as the principles of science in **Holy Qur'an**:-
 i) Investigation of the nature. ii) Reason: The test of faith. iii) Education has been compulsory. 08
 b) Discuss the negative as well as the positive impact of Technology on Muslim Society and life. 08.66
5. a) "Muslim scientists have various responsibilities in order to contribute knowledge and employ their intellects beyond surface knowledge to convert to the total submission of **Allah**". In short, state those responsibilities. 08.66
 b) Clarify the three (3) different types of arithmetic used by the end of the 10th century written by a Muslim scholar Al-Bagdadi and others. 08
6. a)Write the contribution of the following Muslims Scholars:-
 i) **Ibn Al-Haytham** as the father of modern optics. ii) **Al-Battani** as a famous Muslim astronomer, mathematician and astrologer. 08
 b)Discuss the environment as **Allah's** faithful servant. 08.66
7. a) Explain the branches of science in the **Holy Qur'an**. Support your answer from **Qur'an and Hadith**. 08.66
 b) "The **Holy Quran** and the law of attraction". Discuss. 08
8. **Write short notes on any 2 (Two) of the following:** 16.66
 - i) In short summarize the achievements of Muslims mathematicians.
 - ii) Indian numeral system and 0 (Zero) in Arithmetic.
 - iii) Finger-reckoning arithmetic and Sexagesimal system.

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)

Semester Final Examination
Course No: TVE 4749
Course Title: Science, Technology, and Islam

Summer Semester (2017-2018)
Time : 3 hrs
Full Marks : 100

There are 8 (eight) questions. Answer any 6 (six).
Figures in the right margin indicate marks of the questions.

1. a) It has been universally acknowledged that plane and spherical trigonometry were founded by Muslims who developed it considerably. Clarify the work of **Jabir Ibn Afiah** and **Abul Wafa** as a trigonometry Muslims scholars. 8.66
b) Explain Islam as the final and universal revelation. 8.00
2. a) Discuss the environment as Allah's faithful servant. 8.66
b) Write about the medical concept of *Avenzoar* and mention the works of *Avenzoar* and the books of **Abu Marwan ibn al-Ala- ibn Zuhr**. 8.00
3. a) In short explain the Medicine in the medieval Islamic world according to the following centuries:- 9th century; 10th century; 11th century; 12th century; and 13th century. 8.66
b) What is the Medical Science? Discuss the Prophetic Medicine. Support your answer from the **Holy Qur'an Prophet Muhammad** (Sallallaahu Alayhi Wa Sallam, saying) and Hadith. 8.00
4. a) Elaborate the 20th century a host of innovations in the following fields:- Development of technology, physics, medicine, communication, transportation, training and education. 8.00
b) State the kinds of Hospitals and comment on the following Ancient "Muslim" Hospitals and emphasize on their service, doctors and the system in short:- 8.66
i) **Al-Adudi** Hospital (Baghdad-981CE). ii) **Al-Mansouri** Hospital (Cairo-1248 CE). iii) The **Qayrawan** Hospital (Tunisia-830 AD) and the **Music Therapy**.
5. a) "According to an article on www.berkati.net, Islam is a religion for all people of the world from whatever race, back ground they might be - that is why, Islamic civilization treated all equally", Comment. 8.66
b) Elucidate the negative impact of Technology on Islamic society. 8.00
6. a) About 1,000,000,000. Cups of **Coffee** are consumed daily around the world. Discuss the coffee as a Muslims origin and as ubiquitous drink in the past as well as in present. 8.00
b) "Technology has a positive effects on society". Clarify this statement; emphasize its use in religion and education. 8.66
7. a) "According to the scholar **Bertrand Russel** "Mathematics possesses not only truth but supreme beauty cold and austere, like that of sculpture, without appeal to any part of our weaker nature". Discuss the Muslims contribution in Algebra by the following scholars:- (i) **Omar Khayyam**. (ii) **Abu Jaffar Muhammad Ibn Musa Al- Khowrizmi** (790-850). 8.00
b) Elaborate how, where and when the invention of early basic education has been established and by whom. Discuss how the **Holy Qur'an** and **Prophet Muhammad** (pbuh) emphasized the importance in learning in human life. Support your answer with examples from the **Holy Qur'an** and **Hadith**. 8.66
8. Write short notes on any (two) of the following: 16.66
a) Indian numeral system.
b) 0 (Zero) in Arithmetic.
c) **Abu Kamil** and **Abu Bakr Karkhi** as Muslims Scholars in Algebra.

**DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)
ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
THE ORGANISATION OF THE ISLAMIC CONFERENCE (OIC)**

Semester Final Examination

Academic Year 2017-2018

Course No: TVE 6113**Time:** 3 hours**Course Title:** Curriculum Development in TVE**Full Marks:** 150

There are 8 (eight) questions. Answer any 6 (six).

Figures on the right margin indicate marks of the questions.

1. a) What are the three primary data sources that have been used as bases for making curricular decisions? Explain your understanding of curriculum design and describe the role of the curriculum design and development team and also the phases involved in structuring the curriculum. 10
b) Explain briefly with the aid of an outline diagram, the social demand and job analysis approach of curriculum design. 15
2. Determining curriculum content for TVE is very rewarding and yet extremely frustrating. Explain. Briefly explain the factors associated with curriculum content determination. 25
3. Briefly discuss DACUM approach to TVET curriculum content determination. State the distinct advantages of DACUM. 25
4. a) Why is it necessary to determine the need for TVET curriculum materials? 05
b) The development of quality curriculum materials depends on several factors, with each of them having great impact on product quality. Explain. 20
5. a) School-to-work transition may be described as having three different but closely related components "briefly explain". 12
b) The characteristics of a module is focused on the way it is organized and packed, as well as how it relates to the student needs. Discuss. 13
6. Competency-based education has several aspects that distinguishes it from traditional instruction and it has been variously described as focusing on several key areas. Briefly explain the statement. 25
7. Briefly discuss the key elements of a comprehensive assessment of TVET Curriculum, particularly when information is gathers and used for decision making. 25
8. a) Briefly describe the components of a typical assessment plan. 10
b) Do we need to go for curriculum materials assessment? Explain your answer. 05
c) TVET curriculum assessors have given value to, and considered certain aspects of curriculum material quality when these materials are being assessed. Discuss. 10

Programme: M.Sc.T.E. (1st Sem) - 2 Yr.

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)

Semester Final Examination

Course No: TVE 6125

Course Title: Advanced Methods and Techniques of Teaching

Winter Semester (2017-2018)

Time : 3 hrs

Full Marks : 150

There are 8 (eight) questions. Answer any 6 (six).
Figures in the right margin indicate marks of the questions.

- | | | |
|---|--|----|
| 1 | (a) Define qualities of a good teacher. | 05 |
| | (b) Explain – <i>“The mediocre teacher tells, the good teacher explains, the superior teacher demonstrates, the great teacher inspires.”</i> | 08 |
| | (c) Discuss some common problems of teaching. | 12 |
| 2 | (a) What is learning? What are the differences between “Learning” & “Education”? | 05 |
| | (b) Discuss importance of “engaging”, “sharing”, and “nurturing” of TVET students. | 08 |
| | (c) How well do you teach? Discuss the nature of teaching in TVET classrooms. | 12 |
| 3 | (a) Define criteria for an effective teaching. | 05 |
| | (b) Explain – <i>“Some of the brightest minds in the country can be found on the last benches of the classroom.”</i> | 08 |
| | (c) With example discuss the following theories of learning: (i) Learn by doing, (ii) Learn by role playing, and (iii) Learn from mistake. | 12 |
| 4 | (a) Distinguish between traditional-teaching and modern-teaching. | 05 |
| | (b) Explain – <i>“Nothing great in the world has ever been accomplished without passion.”</i> | 08 |
| | (c) As a learner of 21 st century, how do you define “innovation” and “creativity” in teaching and learning? Discuss utilities and limitations of innovative methods of teaching and learning which could be followed by: (i) Flipped classrooms, (ii) MOOCs, (iii) Cloud computing, and (iv) i-Book. | 12 |
| 5 | (a) Does planning necessary for a good lesson? Discuss. | 05 |
| | (b) Select a topic and design a lesson plan which is suitable for TVET students. | 08 |
| | (c) Write short note on <i>“Lifelong Learning in TVET”</i> | 12 |
| 6 | (a) How students learn without teaching? | 05 |
| | (b) Discuss the ways to teach students to be learning-centered. | 08 |
| | (c) Discuss following principles of motivation for learner-centeredness: (i) Prerequisites, (ii) Modeling, (iii) Novelty, and (iv) Fading. | 12 |
| 7 | (a) What is micro-teaching? | 05 |
| | (b) How would you improve teaching skills by micro-teaching? | 08 |
| | (c) Discuss importance of different steps involved in micro-teaching. | 12 |
| 8 | Write short notes on the following (any 4) | 25 |
| | (a) Classroom discipline | |
| | (b) Safety and accident prevention in laboratory classes | |
| | (c) Assessment, measurement, value judgement, and evaluation of students | |
| | (d) Kolb’s learning matrix | |
| | (e) Table of specification. | |

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
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DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)

Semester Final Examination

Course No: TVE 6153

Course Title: Educational Research

Summer Semester (2017-2018)

Time : 3 hrs

Full Marks : 150

There are 8 (eight) questions. Answer any 6 (six).

Figures in the right margin indicate marks of the questions.

1. a) Research in Technical Educational follows a scientific approach, do you agree with this statement? Justify your answer. 13
b) What are the eight qualities that you would recommend if you were a director of a research institute and was asked to identify the best researcher from your institute? 12
2. a) How will you organize your *literature review* process effectively so that you may not get struggle during your thesis completion. 10
b) What is *basic research*? Discuss the main features of basic research in technical education. 10
c) "Basic research and applied research are linked and connected vice versa", do you agree with this claim? Provide one supporting argument in favor of your answer. 05
3. a) Distinguish between qualitative and quantitative research approach with its main features. 12
b) One MScTE student selected a research problem: '**find out TVE teachers' performance on using mobile apps for providing student feedback in the current semester (2017-2018)**' while he/she was conducting his thesis work. He/She was excited to find out the solution of that problem. However, his supervisor suggested him to check out the feasibility of investigating the problem. The supervisor suspected that there might be few challenges which could hinder to conduct this specific problem. Based on this background, what were the possible challenges that the student could encounter while he/she intended to investigate the stated problem? Give satisfactory evidence to support your answer. 08
c) What is extraneous variable in research? Provide example of clarifying its influence in research. 05
4. a) Why sampling is needed for investigating a research problem? 07
b) Write a research title that requires cluster-sampling technique. Calculate the desired sample size, and show each step to reach the desired number of sample. 10
c) What do you mean by purposive sampling? Why does this sampling technique require (apply) for a particular research? 08
5. a) What are the advantages and limitations of using observation schedule (technique) in data collection of research? 10
b) Distinguish between *primary* and *secondary* data sources. 05
c) Give an example of a research area where interview is more appropriate than questionnaire and provide your supporting reasons of choosing interview over questionnaire as a data collection technique. 10
6. a) A research student is conducting a research for identifying skills gap between technical education and industrial practices. In the analysis stage, he got the following data. Calculate the W (Weighted average) or X (Mean) for five statements. (Mean and weighted average are same here). 15

[Strongly Agree (SA); Agree (A); No option (N); Disagree (DA), Strongly Disagree (SDA)]

S	ITEMS	N	SA	A	N	DA	SDA	W
1	We have a lack of skilled workers in industries	35	12 34.3%	16 45.7%	2 5.7%	5 14.3%		
2	The graduates from TVET sectors do not have adequate skills for current workplace (industries)	35	6 17.1%	19 54.3%	3 8.6%	7 20%		
3	Industries are working jointly with TVET institutions to produce competent skilled workers	34	4 11.8%	5 14.7%	9 26.5%	11 32.4%	5 14.7%	
4	The industry has been organizing and hosting internship to provide TVET students with hands on skills	35	7 20%	16 45.7%	9 25.7%		3 8.6%	
5	Industry sends staff overseas for field training so as to equip them with up-to-date skills	35	5 14.3%	15 42.9%	6 17.1%	5 14.3%	4 11.4%	

10

- b) Determine the mean, median and mode of the following set of numbers: 98, 66, 35, 16, 78, 35, 58, 92, 68, 80, 56, 35

Is it inferential or descriptive data analysis?

7. a) Write a research title of your choice in the area of technical education. 04
 b) Why do you think your selected problem is urgent to investigate? 07
 c) List the appropriate research questions (or hypothesis). 04
 d) Design the following methodological aspects to continue your research: 10
- Selection of your research paradigm (qualitative or quantitative) and explain the reasons of selecting such topic.
 - Participants selection procedure.
8. a) Write short note on the following terminology with stating citing one appropriate research problem (example): 16
 (i) Ontology; (ii) Epistemology.
 b) Discuss the main characteristics of a research report (thesis). 09

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)

Semester Final Examination

Course No: CSE 6191

Course Title: Web based instruction and E-learning

Summer Semester (2017-2018)

Time : 3 hrs

Full Marks : 150

There are 8 (eight) questions. Answer any 6 (six).
Figures in the right margin indicate marks of the questions.

1. a) Why do you think, *Web based instruction* could be an alternative to provide quality education in developing country? 15
b) Discuss about *Learning Management System (LMS)* along with its functions. 10
2. a) Discuss the types of distance education delivery system with block diagram? Do you think, all the stated types are still important? Clarify your answer. 15
b) Write Challenges in using online assessments (WBL) and how to overcome them. 10
3. a) Discuss the learner roles and responsibilities in WBL. 12
a) What are the advantages and disadvantages of being the lone designer in an online learning environment? 13
4. a) Why are evaluation criteria used to organize evaluations? 05
b) Why is planning for evaluation an important part of the WBID Model? 10
c) Compare and contrast the positioning of evaluation in the WBID Model versus other Instructional Design Models. 10
5. a) What is the purpose of documenting decisions and results in evaluation? 10
b) What features of the learning environment or online instruction make conducting an evaluation difficult? How could these difficulties be overcome? 15
6. a) How do the data from analysis and evaluation influence the design of online instruction? 12
b) "I can create any kind of instruction in a Web-based environment." Do you agree this statement? Clarify your answer. 13
7. a) What are the main online instructional design tasks? In a project team, who should be responsible for these tasks? What kinds of skills do you think project members should possess? 15
b) How does assessment in Web based learning environments compare to traditional assessment? 10
8. Design a WBL platform for your institute considering the following aspects: 10
a) Draw a schematic diagram which shows the overall design of your proposed WBL (which components are required and how it will be connected), so that the higher authority of your institute understands what the requirements. 10
b) Propose a committee and describe how to execute and evaluate the proposed plan 15

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
 ORGANISATION OF ISLAMIC COOPERATION (OIC)
DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)

Semester Final Examination
 Course No: TVE 6355
 Course Title: Quantitative Research and Advanced Statistics

Winter Semester (2017-2018)
 Time: 3: 00 hours
 Full Marks: 150

There are 8 (eight) questions. Answer any 6 (Six).
Figures in the right margin indicate marks of the questions.

- 1 a. Write short notes on (i) descriptive and inferential statistics, and (ii) parametric and non-parametric tests. 10
- b. Considering assumed mean in the process of calculation, find out mean, standard deviation and variance of the following data: 15

Score	65-69	60-64	55-59	50-54	45-49	40-44	35-39	30-34	25-29	20-24
Frequency	1	3	4	7	9	11	8	4	2	1

- 2 a) Write short notes on descriptive research and historical research with examples. 10
- b) A researcher assumes that the average of a group of students is 18. To prove this hypothesis, he has selected 10 students and tabulated their age as 16, 17, 18, 19, 20, 21, 16, 22, 18, 23. Test the hypothesis at 0.05 level significance. 15
3. a) What is standard error of estimate? Mention five key properties of a normal curve. 10
- b) There is a group of 200 students that has to be classified into five categories A, B, C, D and E according to their ability. Each of the categories being equal under normal distribution, tell how many students should be placed in each category A, B, C, D and E. 15
4. a) What is Analysis of Variance (ANOVA). Discuss the two kinds of variances. 7
- b) Discuss three significances of the technique of ANOVA over t and z test. 8
- c) What is Interaction or residual variance. What are the reasons behind the existence of residual variance? 10
- 5 a) In a research study there were two experimental of independent variables: a seven-member group of players and three coaches who were asked to rate the players in terms of a particular trait on a ten-point scale. The data were recorded as under: 25

Coaches	Players						
	1	2	3	4	5	6	7
A	3	5	3	1	7	3	6
B	4	5	3	4	9	5	5
C	5	5	5	1	7	3	7

Apply the technique of ANOVA for analyzing these data.

- 6 a) Define Contingency coefficient with examples. 10
 b) Students belonging to three departments were asked to respond to a particular question related to their attitude by providing three alternatives: yes, no and undecided. The data collected are given below- 15

Student groups	Yes	No	Undecided	Total
TVE	10	25	15	50
EEE	20	20	5	45
CSE	30	15	10	55
Total	60	60	30	150

Compute a contingency coefficient to test if there is a relationship between departments and student attitude.

- 7 a) 100 boys and girls were asked to select one of the five elective subjects. The choice of the two sexes were tabulated separately. 15

Sex	Subject					Total
	Subject A	Subject B	Subject C	Subject D	Subject E	
Boys	25	30	10	15	10	100
Girls	10	15	5	15	15	60

Test whether the choice of the subjects is dependent upon the sex of the students?

- b) A group of 100 students was asked to comment on their attitude towards the success of their first-year university courses by making quite successful, successful, cannot say anything, unsuccessful, quite unsuccessful. The number of responses falling under each of these categories were recorded as 12, 8, 25, 25 and 30 respectively. Do these results diverge significantly from the results expected merely by chance. 10
- 8 a) Out of 100 students who enter a class room, 60 students turn to the right and 40 to the left. Test the hypothesis that the students turn right or left randomly. 10
 b) In a study of color preference, 48 girls were asked to select the color they liked best out of the three basic colors- red, blue and green. The data collected is as follows: 15

	Red	Blue	Green
	24	12	12

Test the hypothesis that the observed choices do not differ from a random selection.

TABLE A.1

Cumulative Standardized Normal Distribution

Area between the Mean and Successive Standard Deviation Units under the Normal Curve

$z(\frac{x-\bar{x}}{\sigma})$.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0754
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2258	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2518	0.2549
0.7	0.2580	0.2612	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2996	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4383	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	.4987									

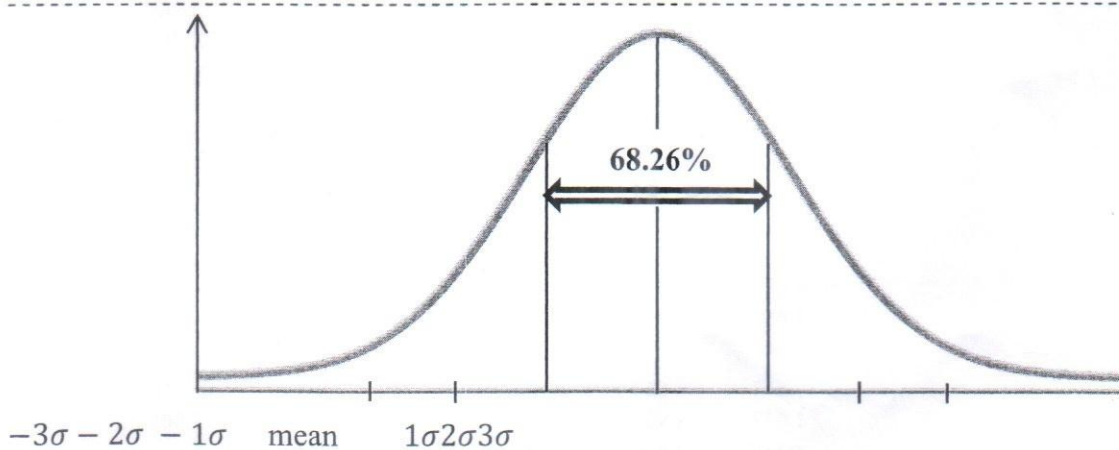


Figure: Area under Normal Curve

TABLE A.2

t Distribution: Critical Values of t

Degrees of freedom	Two-tailed test: One-tailed test:	Significance level					
		10% 5%	5% 2.5%	2% 1%	1% 0.5%	0.2% 0.1%	0.1% 0.05%
1		6.314	12.706	31.821	63.657	318.309	636.619
2		2.920	4.303	6.965	9.925	22.327	31.599
3		2.353	3.182	4.541	5.841	10.215	12.924
4		2.132	2.776	3.747	4.604	7.173	8.610
5		2.015	2.571	3.365	4.032	5.893	6.869
6		1.943	2.447	3.143	3.707	5.208	5.959
7		1.894	2.365	2.998	3.499	4.785	5.408
8		1.860	2.306	2.896	3.355	4.501	5.041
9		1.833	2.262	2.821	3.250	4.297	4.781
10		1.812	2.228	2.764	3.169	4.144	4.587
11		1.796	2.201	2.718	3.106	4.025	4.437
12		1.782	2.179	2.681	3.055	3.930	4.318
13		1.771	2.160	2.650	3.012	3.852	4.221
14		1.761	2.145	2.624	2.977	3.787	4.140
15		1.753	2.131	2.602	2.947	3.733	4.073
16		1.746	2.120	2.583	2.921	3.686	4.015
17		1.740	2.110	2.567	2.898	3.646	3.965
18		1.734	2.101	2.552	2.878	3.610	3.922
19		1.729	2.093	2.539	2.861	3.579	3.883
20		1.725	2.086	2.528	2.845	3.552	3.850
21		1.721	2.080	2.518	2.831	3.527	3.819
22		1.717	2.074	2.508	2.819	3.505	3.792
23		1.714	2.069	2.500	2.807	3.485	3.768
24		1.711	2.064	2.492	2.797	3.467	3.745
25		1.708	2.060	2.485	2.787	3.450	3.725
26		1.706	2.056	2.479	2.779	3.435	3.707
27		1.703	2.052	2.473	2.771	3.421	3.690
28		1.701	2.048	2.467	2.763	3.408	3.674
29		1.699	2.045	2.462	2.756	3.396	3.659
30		1.697	2.042	2.457	2.750	3.385	3.646
32		1.694	2.037	2.449	2.738	3.365	3.622
34		1.691	2.032	2.441	2.728	3.348	3.601
36		1.688	2.028	2.434	2.719	3.333	3.582
38		1.686	2.024	2.429	2.712	3.319	3.566
40		1.684	2.021	2.423	2.704	3.307	3.551
42		1.682	2.018	2.418	2.698	3.296	3.538
44		1.680	2.015	2.414	2.692	3.286	3.526
46		1.679	2.013	2.410	2.687	3.277	3.515
48		1.677	2.011	2.407	2.682	3.269	3.505
50		1.676	2.009	2.403	2.678	3.261	3.496
60		1.671	2.000	2.390	2.660	3.232	3.460
70		1.667	1.994	2.381	2.648	3.211	3.435
80		1.664	1.990	2.374	2.639	3.195	3.416
90		1.662	1.987	2.368	2.632	3.183	3.402
100		1.660	1.984	2.364	2.626	3.174	3.390
120		1.658	1.980	2.358	2.617	3.160	3.373
150		1.655	1.976	2.351	2.609	3.145	3.357
200		1.653	1.972	2.345	2.601	3.131	3.340
300		1.650	1.968	2.339	2.592	3.118	3.323
400		1.649	1.966	2.336	2.588	3.111	3.315
500		1.648	1.965	2.334	2.586	3.107	3.310
600		1.647	1.964	2.333	2.584	3.104	3.307
∞		1.645	1.960	2.326	2.576	3.090	3.291

TABLE 4
Critical values of the *F* distribution (ANOVA)

Table Critical Values of *F* at 5% (Values Written above) and 1% (Lower Values) Levels of Significance

		<i>Degrees of freedom for greater mean square</i>									
		1	2	3	4	5	6	8	12	24	
<i>Degrees of freedom for smaller mean square</i>	2	161.45	199.50	215.72	224.57	230.17	233.97	238.89	243.91	249.04	254.32
		4052.10	4999.03	5403.49	5625.14	5764.08	5859.39	5981.39	6105.83	6234.16	6366.48
	3	18.51	19.00	19.16	19.25	19.30	19.33	19.37	19.41	19.45	19.50
		98.49	99.01	99.17	99.23	99.30	99.33	99.36	99.42	99.46	99.50
	4	10.13	9.55	9.28	9.12	9.01	8.94	8.84	8.74	8.64	8.53
		34.12	30.81	29.46	28.71	28.24	27.91	27.49	27.05	26.60	26.12
	5	7.71	6.94	6.59	6.39	6.26	6.16	6.04	5.91	5.77	5.63
		21.20	18.00	16.69	15.98	15.52	15.21	14.80	14.37	13.93	13.46
	6	6.61	5.79	5.41	5.19	5.05	4.95	4.82	4.68	4.53	4.36
		16.26	13.27	12.06	11.39	10.97	10.67	10.27	9.89	9.47	9.02
	7	5.99	5.14	4.76	4.53	4.39	4.28	4.15	4.00	3.84	3.67
13.74		10.92	9.78	9.15	8.75	8.47	8.10	7.72	7.31	6.88	
8	5.59	4.74	4.35	4.12	3.97	3.87	3.73	3.57	3.41	3.23	
	12.25	9.55	8.45	7.85	7.46	7.19	6.84	6.47	6.07	5.65	
9	5.32	4.46	4.07	3.84	3.69	3.58	3.44	3.28	3.12	2.93	
	11.26	8.65	7.59	7.01	6.63	6.37	6.03	5.67	5.28	4.86	
10	5.12	4.26	3.86	3.63	3.48	3.37	3.23	3.07	2.90	2.71	
	10.56	8.02	6.99	6.42	6.06	5.80	5.47	5.11	4.73	4.31	
11	4.96	4.10	3.71	3.48	3.33	3.22	3.07	2.91	2.74	2.54	
	10.04	7.56	6.45	5.99	5.64	5.39	5.06	4.71	4.33	3.91	
	4.84	3.98	3.59	3.36	3.20	3.09	2.95	2.79	2.61	2.40	
	9.65	7.20	6.22	5.67	5.32	5.07	4.74	4.40	4.02	3.60	

(cont.)

Table R Critical Values of *F* at 5% (Values Written above) and 1% (Lower Values) Levels of Significance (cont.)

		<i>Degrees of freedom for greater mean square</i>									
		1	2	3	4	5	6	8	12	24	∞
<i>Degrees of freedom for smaller mean square</i>	12	4.75	3.88	3.49	3.26	3.11	3.00	2.85	2.69	2.50	2.30
		9.33	6.93	5.95	5.41	5.06	4.82	4.50	4.16	3.78	3.36
	13	4.67	3.80	3.41	3.18	3.02	2.92	2.77	2.60	2.42	2.21
		9.07	6.70	5.74	5.20	4.86	4.62	4.30	3.96	3.59	3.16
	14	4.60	3.74	3.34	3.11	2.96	2.85	2.70	2.53	2.35	2.13
		8.86	6.51	5.56	5.03	4.69	4.46	4.14	3.80	3.43	3.00
	15	4.54	3.68	3.29	3.06	2.90	2.79	2.64	2.48	2.29	2.07
		8.68	6.36	5.42	4.89	4.56	4.32	4.00	3.67	3.29	2.87
	16	4.49	3.63	3.24	3.01	2.85	2.74	2.59	2.42	2.24	2.01
		8.53	6.23	5.29	4.77	4.44	4.20	3.89	3.55	3.18	2.75
	17	4.45	3.59	3.20	2.96	2.81	2.70	2.55	2.38	2.19	1.96
8.40		6.11	5.18	4.67	4.34	4.10	3.79	3.45	3.08	2.65	
18	4.41	3.55	3.16	2.93	2.77	2.66	2.51	2.34	2.15	1.92	
	8.28	6.01	5.09	4.58	4.25	4.01	3.71	3.37	3.01	2.57	
19	4.38	3.52	3.13	2.90	2.74	2.63	2.48	2.31	2.11	1.88	
	8.18	5.93	5.01	4.50	4.17	3.94	3.63	3.30	2.92	2.49	
20	4.35	3.49	3.10	2.87	2.71	2.60	2.45	2.28	2.08	1.84	
	8.10	5.85	4.94	4.43	4.10	3.87	3.56	3.23	2.86	2.42	
21	4.32	3.47	3.07	2.84	2.68	2.57	2.42	2.25	2.05	1.81	
	8.02	5.78	4.87	4.37	4.04	3.81	3.51	3.17	2.80	2.36	
22	4.30	3.44	3.05	2.82	2.66	2.55	2.40	2.23	2.03	1.78	
	7.94	5.72	4.82	4.31	3.99	3.75	3.45	3.12	2.75	2.30	
23	4.28	3.42	3.03	2.80	2.64	2.53	2.38	2.20	2.00	1.76	
	7.87	5.66	4.76	4.26	3.94	3.71	3.41	3.07	2.70	2.26	

Table Critical Values of *F* at 5% (Values Written above) and 1% (Lower Values) Levels of Significance (cont.)

Degrees of freedom for greater mean square

	1	2	3	4	5	6	8	12	24	∞
24	4.26	3.40	3.01	2.78	2.62	2.51	2.36	2.18	1.98	1.73
	7.82	5.61	4.72	4.22	3.90	3.67	3.36	3.03	2.66	2.21
25	4.24	3.38	2.99	2.76	2.60	2.49	2.34	2.16	1.96	1.71
	7.77	5.57	4.68	4.18	3.86	3.63	3.32	2.99	2.62	2.17
26	4.22	3.37	2.98	2.74	2.59	2.47	2.32	2.15	1.95	1.69
	7.72	5.53	4.64	4.14	3.82	3.59	3.29	2.96	2.58	2.13
27	4.21	3.35	2.96	2.73	2.57	2.46	2.30	2.13	1.93	1.67
	7.68	5.49	4.60	4.11	3.78	3.56	3.26	2.93	2.55	2.10
28	4.20	3.34	2.95	2.71	2.56	2.44	2.29	2.12	1.91	1.65
	7.64	5.45	4.57	4.07	3.75	3.53	3.23	2.90	2.52	2.06
29	4.18	3.33	2.93	2.70	2.54	2.43	2.28	2.10	1.90	1.64
	7.60	5.42	4.54	4.04	3.73	3.50	3.20	2.87	2.49	2.03
30	4.17	3.32	2.92	2.69	2.53	2.42	2.27	2.09	1.89	1.62
	7.56	5.39	4.51	4.02	3.70	3.47	3.17	2.84	2.47	2.01
35	4.12	3.26	2.87	2.64	2.48	2.37	2.22	2.04	1.83	1.57
	7.42	5.27	4.40	3.91	3.59	3.37	3.07	2.74	2.37	1.90
40	4.08	3.23	2.84	2.61	2.45	2.34	2.18	2.00	1.79	1.52
	7.31	5.18	4.31	3.83	3.51	3.29	2.99	2.66	2.29	1.82
45	4.06	3.21	2.81	2.58	2.42	2.31	2.15	1.97	1.76	1.48
	7.23	5.11	4.25	3.77	3.45	3.23	2.94	2.61	2.23	1.75
50	4.03	3.18	2.79	2.56	2.40	2.29	2.13	1.95	1.74	1.44
	7.17	5.06	4.20	3.72	3.41	3.19	2.89	2.56	2.18	1.68
60	4.00	3.15	2.76	2.52	2.37	2.25	2.10	1.92	1.70	1.39
	7.08	4.98	4.13	3.65	3.34	3.12	2.82	2.50	2.12	1.60

(cont.)

Table R Critical Values of *F* at 5% (Values Written above) and 1% (Lower Values) Levels of Significance (cont.)

Degrees of freedom for greater mean square

	1	2	3	4	5	6	8	12	24	∞
70	3.98	3.13	2.74	2.50	2.35	2.23	2.07	1.89	1.67	1.35
	7.01	4.92	4.07	3.60	3.29	3.07	2.78	2.45	2.07	1.53
80	3.96	3.11	2.72	2.49	2.33	2.21	2.06	1.88	1.65	1.31
	6.96	4.88	4.04	3.56	3.26	3.04	2.74	2.42	2.03	1.47
90	3.95	3.10	2.71	2.47	2.32	2.20	2.04	1.86	1.64	1.28
	6.92	4.85	4.01	3.53	3.23	3.01	2.72	2.39	2.00	1.43
100	3.94	3.09	2.70	2.46	2.30	2.19	2.03	1.85	1.63	1.26
	6.90	4.82	3.98	3.51	3.21	2.99	2.69	2.37	1.98	1.39
125	3.92	3.07	2.68	2.44	2.29	2.17	2.01	1.83	1.60	1.21
	6.84	4.78	3.94	3.47	3.17	2.95	2.66	2.33	1.94	1.32
150	3.90	3.06	2.66	2.43	2.27	2.16	2.00	1.82	1.59	1.18
	6.81	4.75	3.91	3.45	3.14	2.92	2.63	2.31	1.92	1.27
200	3.89	3.04	2.65	2.42	2.26	2.14	1.98	1.80	1.57	1.14
	6.76	4.71	3.88	3.41	3.11	2.89	2.60	2.28	1.88	1.21
300	3.87	3.03	2.64	2.41	2.25	2.13	1.97	1.79	1.55	1.10
	6.72	4.68	3.85	3.38	3.08	2.86	2.57	2.24	1.85	1.14
400	3.86	3.02	2.63	2.40	2.24	2.12	1.96	1.78	1.54	1.07
	6.70	4.66	3.83	3.37	3.06	2.85	2.56	2.23	1.84	1.11
500	3.86	3.01	2.62	2.39	2.23	2.11	1.96	1.77	1.54	1.06
	6.69	4.65	3.82	3.36	3.05	2.84	2.55	2.22	1.83	1.08
1000	3.85	3.00	2.61	2.38	2.22	2.10	1.95	1.76	1.53	1.03
	6.66	4.63	3.80	3.34	3.04	2.82	2.53	2.20	1.81	1.04
∞	3.84	2.99	2.60	2.37	2.21	2.09	1.94	1.75	1.52	
	6.64	4.60	3.78	3.32	3.02	2.80	2.51	2.18	1.79	

Formulae:TVE6355

[The Parameters in the formulae have their usual meanings]

Central Tendency

$$M = \frac{\sum fX}{N}; M = A + \frac{\sum fx}{N} \times i; M_d = \left(\frac{N+1}{2}\right)th; M_d = L + \left[\frac{(N/2)-F}{f}\right] \times i; M_d = \left[\frac{\text{value of } (N/2)th + \text{value of } (N/2+1)th}{2}\right]$$

$$M_o = L + \frac{f_1}{f_1+f_{-1}} \times i; M_o = 3M_d - 2M; SD = \sqrt{\frac{\sum X^2}{N}}; SD = \sqrt{\frac{\sum fX^2}{N}}$$

Percentiles

$$PR = 100 - \frac{100R-50}{N}; PR = \frac{100}{N} \left[F + \left(\frac{X-L}{i}\right) \times f \right]$$

Difference between means (using normal curve, z and t value)

$$z = \frac{X-M}{\sigma}; t = \frac{M_1-M_2}{\sigma_D}$$

Standard Error

$$\sigma_D = \sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}; \sigma = \sqrt{\frac{\sum x_1^2 + \sum x_2^2}{(N_1-1) + (N_2-1)}}; SE_d = \sqrt{\sigma_{M_1}^2 + \sigma_{M_2}^2 - 2r\sigma_{M_1}\sigma_{M_2}}; SE_d = \sqrt{(\sigma_{M_1}^2 + \sigma_{M_2}^2)(1-r^2)}$$

$$\sigma_D = \sigma \left(\frac{1}{n_1} + \frac{1}{n_2} \right)$$

Chi-square test

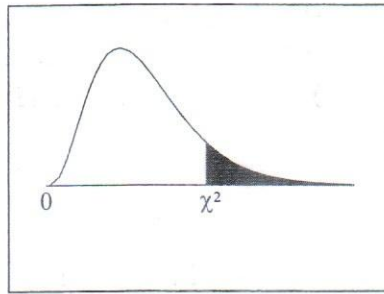
$$\chi^2 = \sum \left[\frac{(f_o - f_e)^2}{f_e} \right]; \chi^2 = \frac{N(AD-BC)^2}{(A+B)(C+D)(A+C)(B+D)}; C = \sqrt{\frac{X^2}{N + X^2}}; \chi^2 = \sum \left[\frac{(|f_o - f_e| - 0.5)^2}{f_e} \right]; \chi^2 = \frac{N(|AD-BC| - \frac{N}{2})^2}{(A+B)(C+D)(A+C)(B+D)}$$

ANOVA

$$C = \frac{(\sum X)^2}{N}; S_t^2 = \sum X^2 - C; S_b^2 = \frac{(\sum X_1)^2}{n_1} + \frac{(\sum X_2)^2}{n_2} + \frac{(\sum X_3)^2}{n_3} \dots + \frac{(\sum X_n)^2}{n_n} - C; S_w^2 = S_t^2 - S_b^2$$

$$F = \frac{\text{Mean square variance between the groups}}{\text{Mean square variance within the groups}}$$

Chi-Square Distribution Table



<i>df</i>	.99	.95	.90	.10	.05	.01	.005
1	0.000	0.004	0.016	2.706	3.841	6.635	7.879
2	0.020	0.103	0.211	4.605	5.991	9.210	10.597
3	0.115	0.352	0.584	6.251	7.815	11.345	12.838
4	0.297	0.711	1.064	7.779	9.488	13.277	14.860
5	0.554	1.145	1.610	9.236	11.070	15.086	16.750
6	0.872	1.635	2.204	10.645	12.592	16.812	18.548
7	1.239	2.167	2.833	12.017	14.067	18.475	20.278
8	1.646	2.733	3.490	13.362	15.507	20.090	21.955
9	2.088	3.325	4.168	14.684	16.919	21.666	23.589
10	2.558	3.940	4.865	15.987	18.307	23.209	25.188
11	3.053	4.575	5.578	17.275	19.675	24.725	26.757
12	3.571	5.226	6.304	18.549	21.026	26.217	28.300
13	4.107	5.892	7.042	19.812	22.362	27.688	29.819
14	4.660	6.571	7.790	21.064	23.685	29.141	31.319
15	5.229	7.261	8.547	22.307	24.996	30.578	32.801
16	5.812	7.962	9.312	23.542	26.296	32.000	34.267
17	6.408	8.672	10.085	24.769	27.587	33.409	35.718
18	7.015	9.390	10.865	25.989	28.869	34.805	37.156
19	7.633	10.117	11.651	27.204	30.144	36.191	38.582
20	8.260	10.851	12.443	28.412	31.410	37.566	39.997
21	8.897	11.591	13.240	29.615	32.671	38.932	41.401
22	9.542	12.338	14.041	30.813	33.924	40.289	42.796
23	10.196	13.091	14.848	32.007	35.172	41.638	44.181
24	10.856	13.848	15.659	33.196	36.415	42.980	45.559
25	11.524	14.611	16.473	34.382	37.652	44.314	46.928
26	12.198	15.379	17.292	35.563	38.885	45.642	48.290
27	12.879	16.151	18.114	36.741	40.113	46.963	49.645
28	13.565	16.928	18.939	37.916	41.337	48.278	50.993
29	14.256	17.708	19.768	39.087	42.557	49.588	52.336
30	14.953	18.493	20.599	40.256	43.773	50.892	53.672
40	22.164	26.509	29.051	51.805	55.758	63.691	66.766
50	29.707	34.764	37.689	63.167	67.505	76.154	79.490
60	37.485	43.188	46.459	74.397	79.082	88.379	91.952
70	45.442	51.739	55.329	85.527	90.531	100.425	104.215
80	53.540	60.391	64.278	96.578	101.879	112.329	116.321
90	61.754	69.126	73.291	107.565	113.145	124.116	128.299
100	70.065	77.929	82.358	118.498	124.342	135.807	140.169

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION (TVE)

Semester Final Examination

Course No: TVE 6371

Course Title: Systems Approach in Technical Education

Winter Semester (2017-2018)

Time : 3:00 Hours

Full Marks : 150

There are 8 (eight) questions. Answer any 6 (six).
Figures in the right margin indicate marks of the questions.

1. (a) Define system approach. How does system approach inter link with education? 10
(b) Explain different procedures of systems approach that influence in education. 10
(c) State the essential characteristics of systems approach. 5
2. (a) Describe general system theory with necessary illustrations. 12
(b) Explain briefly guidelines of a system wholeness as mentioned by L. Thomas Hopkins in general system analysis. 13
3. (a) What is an organization? Explain different types of organization. 10
(b) "Organization is an open system"- explain with a suitable example. 10
(c) State characteristics of formal organization. 5
4. What is organization theory? Classify organization theory and explain briefly each of the theories. 25
5. (a) Explain concept and meaning of organization boundaries. 10
(b) Discuss characteristics and functions of an organization boundary. 10
(c) Distinguish between boundary-spanning positions and boundary role persons. 5
6. (a) Define system analysis. Explain briefly importance of systems analysis. 10
(b) What is decision model? Explain a numerical model with suitable example. 15
7. (a) What is Ergonomics? Explain briefly how does ergonomics work? 10
(b) Discuss briefly how human factors & ergonomics influence in education? 15
8. (a) Define concept of interfaced of a system? Explain two general categories of adapting interfaces in a system. 10
(b) Explain briefly interfacing of curriculum and instructional sub-system with necessary diagram. 15